



## SAS CT-10

10N / 2.25LBF CAPACITY

C-FRAME COMPRESSION/EXTENSION SPRING TESTER

SERVO DRIVEN, PC CONTROLLED



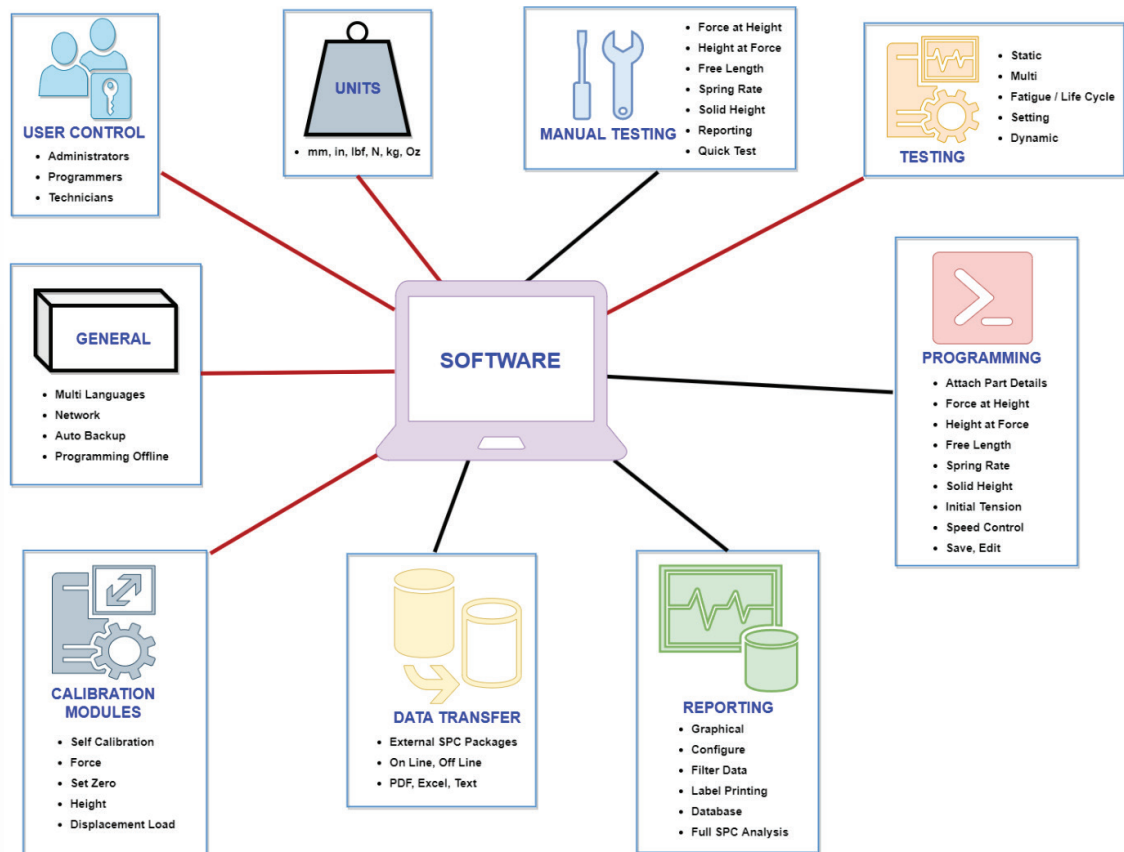
Standard Model

HS Model

## SPECIFICATIONS

Load	<p>Recommended Load Capacity 10N (2.25lbf)</p> <p>Recommended Minimum test load 0.05N (.01125lbf)</p> <p>Load Resolution 0.0002N (000045lbf)</p> <p>Load Accuracy per ISO 7500 /1 Class 0.5 (0.5% of load, between 0.5% capacity up to full capacity)</p> <p>Continuous digital display or Force/Load height graphical analysis tools and display</p> <p>Safe overload to 150% of FS (compression and tension overload protection at 100% of FS load)</p>
Stroke	<p>Stroke 200mm (8") Standard</p> <p>500mm (20") Optional for Standard Model</p> <p><b>500mm (20") HS Model</b></p> <p><b>1000mm(40") Optional for HS Model</b></p> <p>Resolution: 0.003mm (0.0002") for 200 stroke, - Standard Model</p> <p>Resolution: 0.008mm (0.0005") for 500mm stroke –Optional for Standard Model</p> <p><b>Resolution: 0.00025mm (0.0000098") for 500mm and 1000mm stroke –HS Model</b></p> <p>Accuracy: <math>\pm 0.02\text{mm}</math> (<math>\pm 0.0008"</math>) for 200 stroke on standard model , Accuracy: <math>\pm 0.04\text{mm}</math> (<math>\pm 0.0015"</math>) for 500mm standard model optional stroke. Absolute display of load height above a user defined fixed reference.</p> <p><b>Accuracy: <math>\pm 0.01\text{mm}</math> (<math>\pm 0.00039"</math>) for 500 stroke for HS Model,</b></p> <p><b>Accuracy: better than 0.005mm– Available with independent Calibration for HS Model</b></p>
Test Speeds	<p>1.5mm/s – 15mm/s (3.5"/min – 35.5"/min)</p> <p>4 distinct speed settings available Standard Model</p> <p><b>0.1mm/s – 125mm/s (0.236"/min-295.3"/min) HS Model</b></p> <p><b>12 distinct speed settings available HS Model</b></p>

## Software Features



## SPECIFICATIONS

Platten Diameter	55mm (2.2")
User Interface	SAS software is included with the purchase of the tester. The buyer can purchase the computer from SAS or supply their own. If the buyer supplies their own User Interface SAS will remote into the computer and install the SAS software

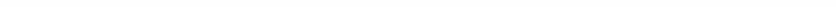
## OPTIONS

Computer (Optional)	<ul style="list-style-type: none"> <li>Intel Dual Core (minimum) processor</li> <li>Serial or USB connection to PC for control and data transfer</li> <li>Fully Microsoft Windows 11 compatible</li> <li>Display 17" Monitor</li> </ul>
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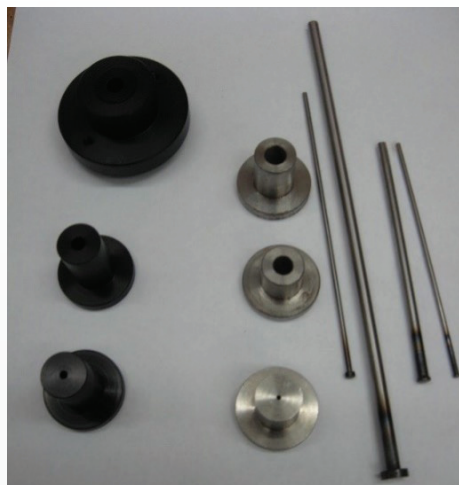
Dimensional Measurement Software with 150mm Mitutoyo Caliper <i>(Optional)</i>	Add dimensional measurement to Spring Force Data on a single combined report.
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Add dimensional measurement to Spring Force Data on a single combined report.

			CT80 Spring Analysis System Results report			Customer: _____ Order Number: _____ Customer Address: _____ Customer Address: _____		
Program Name: _____ No of springs per batch: _____ Type of spring: _____ Units: _____ Load Cell: _____			Spring: _____ Part name: _____ Part number: _____			Operator: _____ Operator Name: _____ Drawing Number: _____ Revision: _____		
Normal LSL USL			0.002 0.000 0.004	0.044 0.042 0.047				
No.			F1					
1-1			0.010	0.040				
1-2			0.010	0.041				
1-3			0.010	0.040				
1-4			0.010	0.040				
1-5			0.010	0.041				
2-1			0.010	0.040				
2-2			0.010	0.040				
2-3			0.010	0.040				
2-4			0.010	0.040				
2-5			0.010	0.040				
Min			0.010	0.040				
Max			0.010	0.041				
Avg			0.010	0.040				
Std			0.000	0.001				
Std			0.000	0.000				
Cpk			0.000	0.001				
>Tol			0	0				
<Tol			0	0				
[Tol]			10	10				

<p>Buckling Prevention Pins and Fixtures (Optional)</p> 	<p>Allows the safe testing of springs that are flimsy or tend to buckle.</p>
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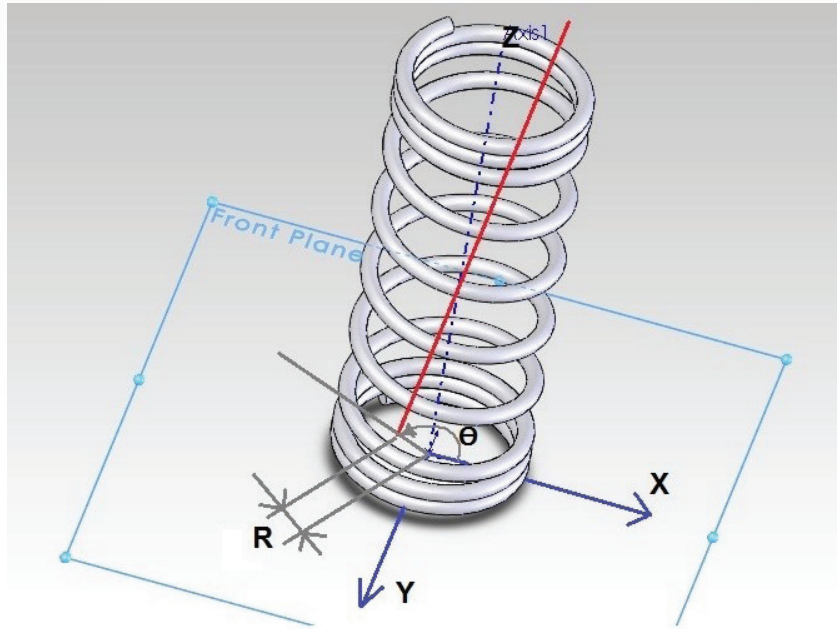
Allows the safe testing of springs that are flimsy or tend to buckle.





## OPTIONS

Conductive Free Length (Optional)	Conductive Free Length (CFL) sensing utilizes a digital input connected directly to the servo controller to determine the spring free length by electrical conduction using a 3.5kHz sampling rate. When measured by CFL the results are independent of the spring rate which provides a highly accurate measurement at a 10X speed versus the standard force sensing method. The tested spring must be both electrically conductive and free of scale, oil, or dirt.
Load Vector Module (Optional)	A module designed to measure side loads, in plane, and out of plane forces acting on a spring. Vector analysis of the Spring Forces. Available for 500N models and larger.



## FORCES MEASURED BY LVA UNIT

Fn	Axial Vertical Forces measured on standard loadcells
SULx	Force in the X in-plane direction.
SULy	Force in the Y in-plane direction.
SULr	Resultant force in the XY plane.
SULrp	XY plane vector pierce point as a radius from the part center (polar coordinate).
SULθp	XY plane angle to pierce point (polar coordinate – refer to SULrp).
SULxz	Angle of the force vector projected onto the XZ plane
SULyz	Angle of the force vector projected onto the YZ plane.

## SPECIFICATIONS

	Standard Model	HS Model
Dimensions	25 x 50 x 60 cm (10" x 20" x 23.6") Weight 25 kg (55lbf)	25 x 50 x 95 cm (10" x 20" x 37.4") Weight 40 kg (88lbf)
Power	110V~220V AC 4A (Maximum)	



Michael Shapiro, Janet Montes, Yuval Terem  
[mshapiro@gibraltar8.com](mailto:mshapiro@gibraltar8.com) | 847-383-5442  
 1945 Techny Road, Unit 5, Northbrook, IL 60062





## SAS CT-50

50N / 11.21LBF CAPACITY

C-FRAME COMPRESSION/EXTENSION SPRING TESTER

SERVO DRIVEN, PC CONTROLLED



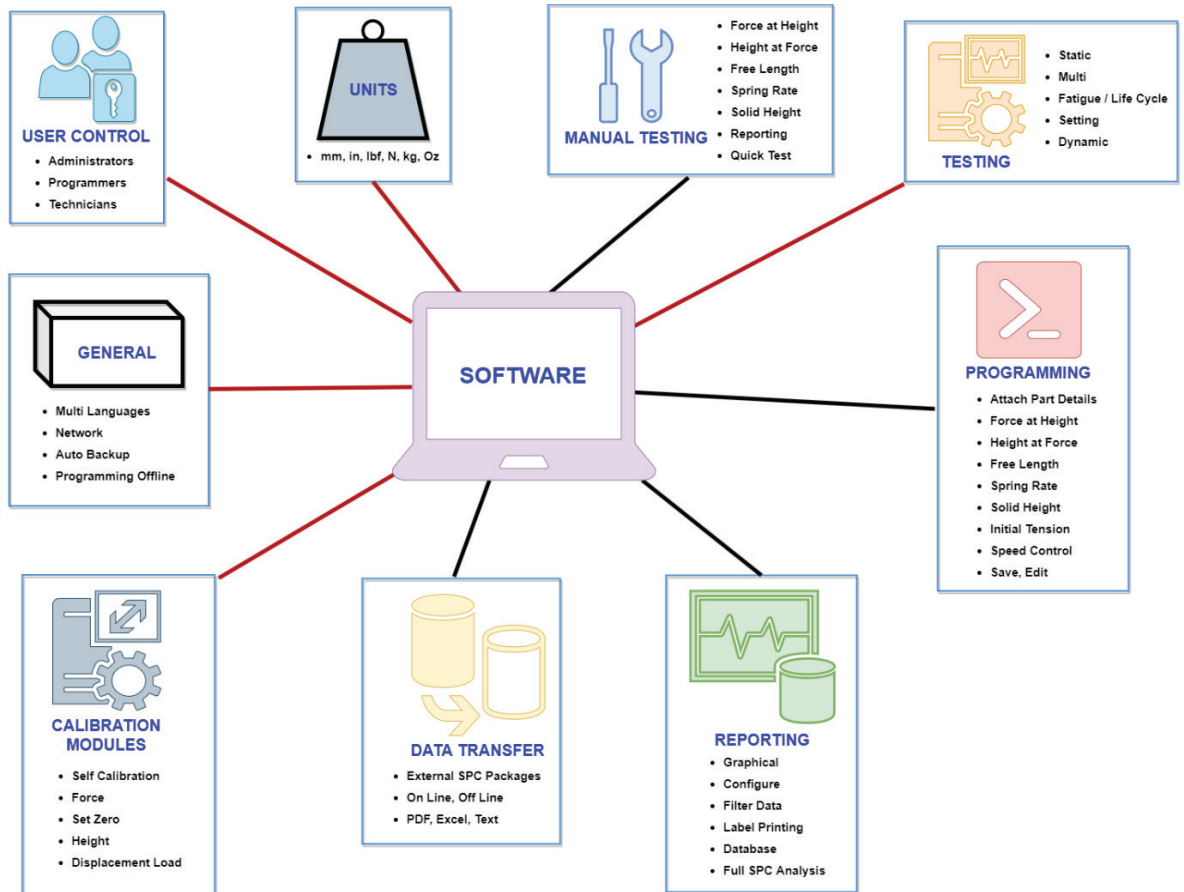
Standard Model

HS Model

## SPECIFICATIONS

Load	<p>Recommended Load Capacity 50N (11.21lbf)</p> <p>Recommended Minimum test load 0.25N (.056lbf)</p> <p>Load Resolution 0.001N (0.000225lbf)</p> <p>Load Accuracy at 0.5% of Range <math>\pm 0.00125N</math> (<math>\pm 0.000280lbf</math>)</p> <p>Continuous digital display or Force/Load height graphical analysis tools and display</p> <p>Safe overload to 150% of FS (compression and tension overload protection at 100% of FS load)</p>
Stroke	<p>Stroke 200mm (8") Standard</p> <p>500mm (20") Optional for Standard Model</p> <p><b>500mm (20") HS Model</b></p> <p><b>1000mm(40") Optional for HS Model</b></p> <p>Resolution: 0.003mm (0.0002") for 200 stroke, - Standard Model</p> <p>Resolution: 0.008mm (0.0005") for 500mm stroke –Optional for Standard Model</p> <p><b>Resolution: 0.00025mm (0.0000098") for 500mm and 1000mm stroke –HS Model</b></p> <p>Accuracy: <math>\pm 0.02mm</math> (<math>\pm 0.0008"</math>) for 200 stroke on standard model , Accuracy: <math>\pm 0.04mm</math> (<math>\pm 0.0015"</math>) for 500mm standard model optional stroke. Absolute display of load height above a user defined fixed reference.</p> <p><b>Accuracy: <math>\pm 0.01mm</math> (<math>\pm 0.00039"</math>) for 500 stroke for HS Model,</b></p> <p><b>Accuracy: better than 0.005mm– Available with independent Calibration for HS Model</b></p>
Test Speeds	<p>1.5mm/s – 15mm/s (3.5"/min – 35.5"/min)</p> <p>4 distinct speed settings available Standard Model</p> <p><b>0.1mm/s – 125mm/s (0.236"/min-295.3"/min) HS Model</b></p> <p><b>12 distinct speed settings available HS Model</b></p>

### Software Features





## SPECIFICATIONS

Platten Diameter	55mm (2.2")
User Interface	SAS software is included with the purchase of the tester. The buyer can purchase the computer from SAS or supply their own. If the buyer supplies their own User Interface SAS will remote into the computer and install the SAS software

## OPTIONS

Computer (Optional)	Intel Dual Core (minimum) processor Serial or USB connection to PC for control and data transfer Fully Microsoft Windows 11 compatible Display 17" Monitor
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Dimensional  
Measurement  
Software with  
150mm Mitutoyo  
Caliper (*Optional*)

Add dimensional measurement to Spring Force Data on a single combined report.

			<b>CT50 Spring Analysis System</b> Results report			Customer: Order Number: Customer Address: Customer Address:																																																																																																					
region name: No of springs per batch: Type of spring: Units: Load GW			12000 5 Compression N, mm 22.000 N			component: Part name: Part number: 1																																																																																																					
operator: Operator Name: Drawing Number: Revision:			Admin																																																																																																								
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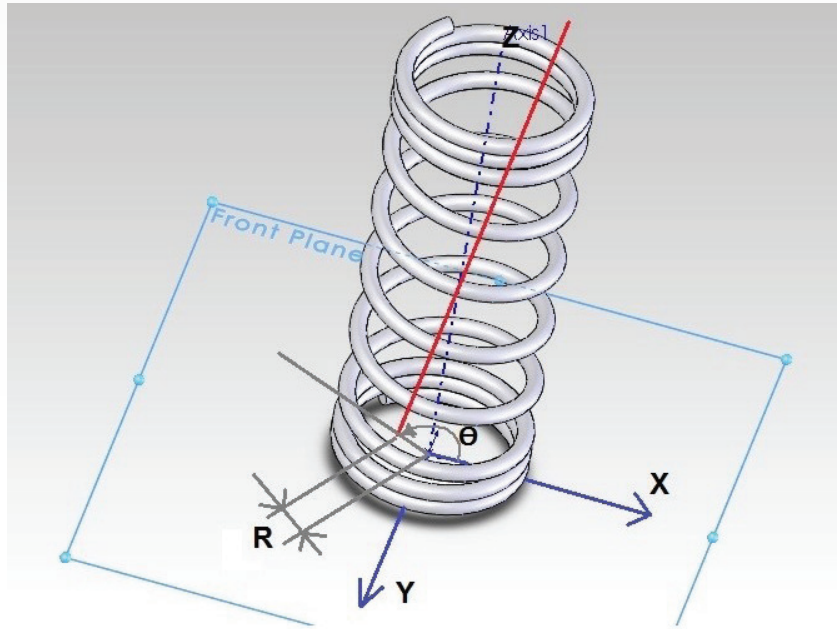
### Buckling Prevention Pins and Fixtures (Optional)

Allows the safe testing of springs that are flimsy or tend to buckle.



## OPTIONS

Conductive Free Length (Optional)	Conductive Free Length (CFL) sensing utilizes a digital input connected directly to the servo controller to determine the spring free length by electrical conduction using a 3.5kHz sampling rate. When measured by CFL the results are independent of the spring rate which provides a highly accurate measurement at a 10X speed versus the standard force sensing method. The tested spring must be both electrically conductive and free of scale, oil, or dirt.
Load Vector Module (Optional)	A module designed to measure side loads, in plane, and out of plane forces acting on a spring. Vector analysis of the Spring Forces. Available for 500N models and larger.



## FORCES MEASURED BY LVA UNIT

Fn	Axial Vertical Forces measured on standard loadcells
SULx	Force in the X in-plane direction.
SULy	Force in the Y in-plane direction.
SULr	Resultant force in the XY plane.
SULrp	XY plane vector pierce point as a radius from the part center (polar coordinate).
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SULxz	Angle of the force vector projected onto the XZ plane
SULyz	Angle of the force vector projected onto the YZ plane.

## SPECIFICATIONS

	Standard Model	HS Model
Dimensions	25 x 50 x 60 cm (10" x 20" x 23.6") Weight 25 kg (55lbf)	25 x 50 x 95 cm (10" x 20" x 37.4") Weight 40 kg (88lbf)
Power	110V~220V AC 4A (Maximum)	



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## SAS CT-100

100N / 22.5LBF CAPACITY

C-FRAME COMPRESSION/EXTENSION SPRING TESTER

SERVO DRIVEN, PC CONTROLLED

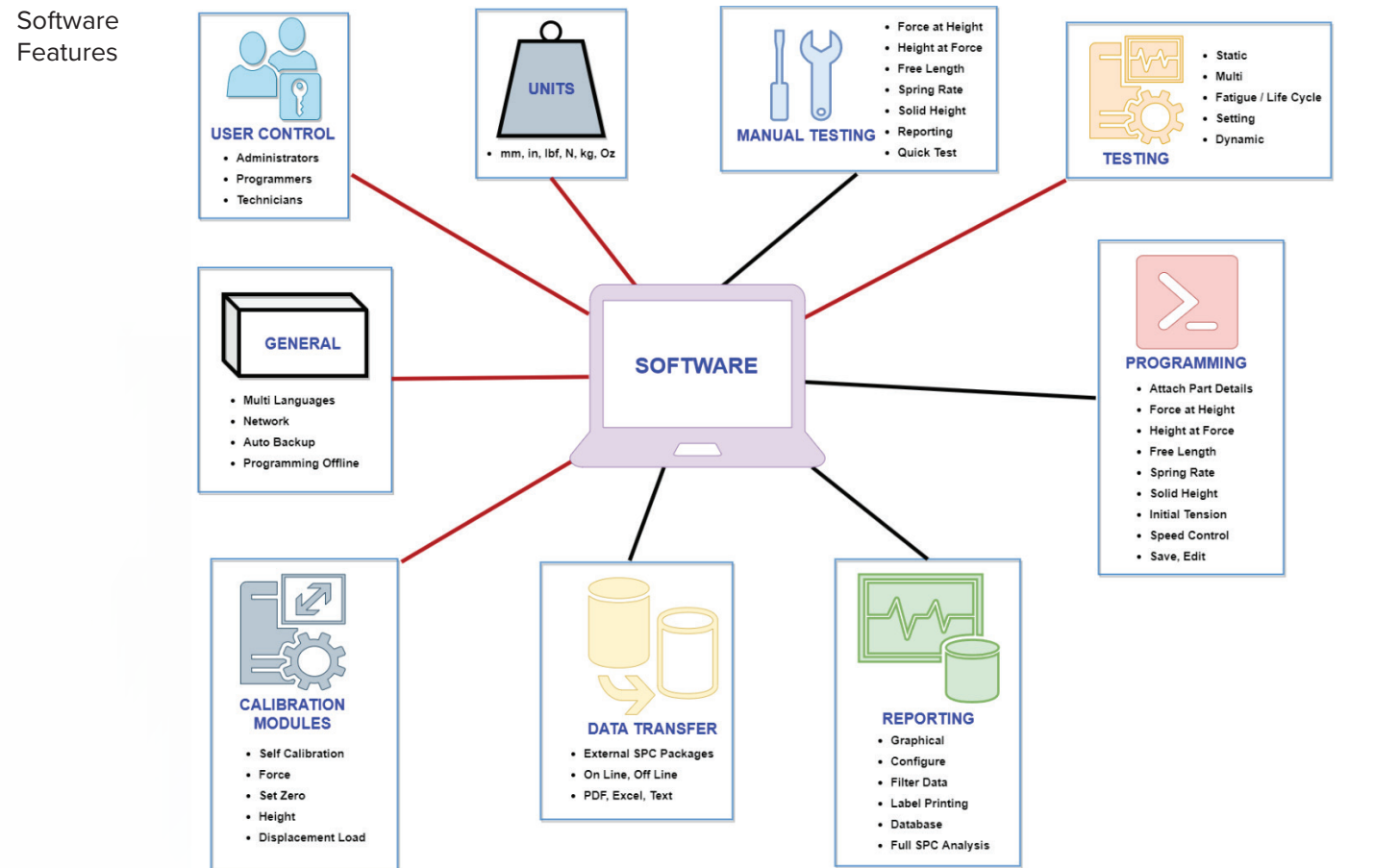


Standard Model

HS Model

## SPECIFICATIONS

Load	<p>Recommended Load Capacity 100N (22.5lbf)</p> <p>Recommended Minimum test load 0.50N (0.1125lbf)</p> <p>Load Resolution 0.002N (0.00045lbf)</p> <p>Load Accuracy per ISO 7500 /1 Class 0.5 (0.5% of load, between 0.5% capacity up to full capacity)</p> <p>Continuous digital display or Force/Load height graphical analysis tools and display</p> <p>Safe overload to 150% of FS (compression and tension overload protection at 100% of FS load)</p>
Stroke	<p>Stroke 200mm (8") Standard</p> <p>500mm (20") Optional for Standard Model</p> <p><b>500mm (20") HS Model</b></p> <p><b>1000mm(40") Optional for HS Model</b></p> <p>Resolution: 0.003mm (0.0002") for 200 stroke, - Standard Model</p> <p>Resolution: 0.008mm (0.0005") for 500mm stroke –Optional for Standard Model</p> <p><b>Resolution: 0.00025mm (0.0000098") for 500mm and 1000mm stroke –HS Model</b></p> <p>Accuracy: <math>\pm 0.02\text{mm}</math> (<math>\pm 0.0008"</math>) for 200 stroke on standard model , Accuracy: <math>\pm 0.04\text{mm}</math> (<math>\pm 0.0015"</math>) for 500mm standard model optional stroke. Absolute display of load height above a user defined fixed reference.</p> <p><b>Accuracy: <math>\pm 0.01\text{mm}</math> (<math>\pm 0.00039"</math>) for 500 stroke for HS Model,</b></p> <p><b>Accuracy: better than 0.005mm– Available with independent Calibration for HS Model</b></p>
Test Speeds	<p>1.5mm/s – 15mm/s (3.5"/min – 35.5"/min)</p> <p>4 distinct speed settings available Standard Model</p> <p><b>0.1mm/s – 125mm/s (0.236"/min-295.3"/min) HS Model</b></p> <p><b>12 distinct speed settings available HS Model</b></p>



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Platten Diameter	55mm (2.2")
User Interface	SAS software is included with the purchase of the tester. The buyer can purchase the computer from SAS or supply their own. If the buyer supplies their own User Interface SAS will remote into the computer and install the SAS software


## OPTIONS

Computer (Optional)	<ul style="list-style-type: none"> <li>Intel Dual Core (minimum) processor</li> <li>Serial or USB connection to PC for control and data transfer</li> <li>Fully Microsoft Windows 11 compatible</li> <li>Display 17" Monitor</li> </ul>
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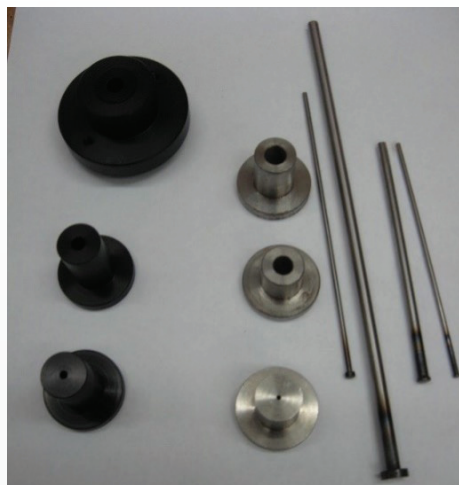
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		<b>CT80 Spring Analysis System</b> Results report		Customer: _____ Order Number: _____ Customer Address: _____ Customer Address: _____	
Region Name: _____ No. of springs per batch: _____ Type of spring: _____ Units: _____ Load GW: _____		Spring: _____ Compression: _____ N/mm: _____ 22.00 N/mm		Component: _____ Part name: _____ Part number: _____ Material: _____	
Nominal: _____ LSL: _____ USL: _____		0.002 0.000 0.004		0.044 0.042 0.047	
No.		F1			
1-1		0.000		0.040	
1-2		0.000		0.047	
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1-4		0.000		0.040	
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2-3		0.000		0.040	
2-4		0.000		0.040	
2-5		0.000		0.040	
Min		0.000		0.040	
Max		0.000		0.047	
Avg		0.000		0.040	
STD		0.000		0.001	
Stdv		0.000		0.000	
CpK		0.000		0.000	
+Tol		0		0	
-Tol		0		0	
(Tol)		0		0	

<p>Buckling Prevention Pins and Fixtures (Optional)</p>	<p>Allows the safe testing of springs that are flimsy or tend to buckle.</p> 
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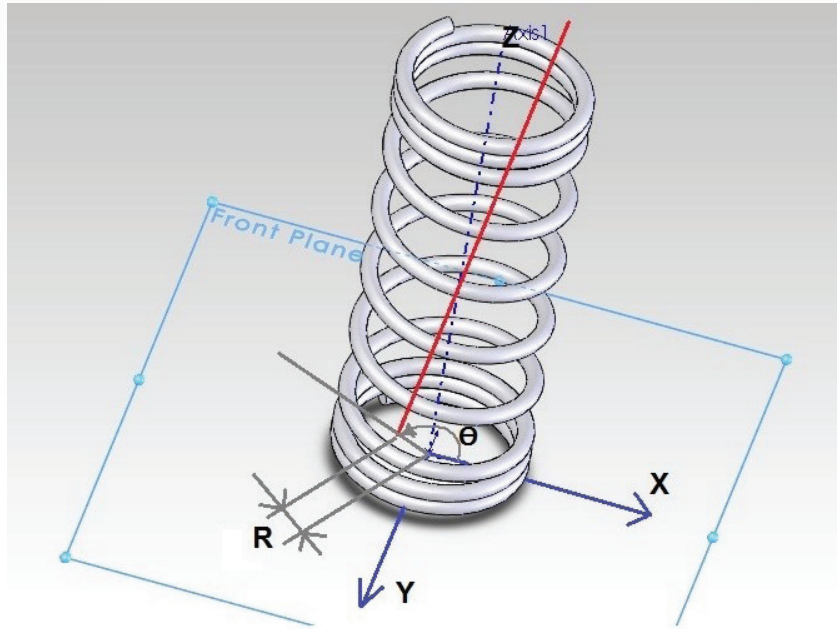
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## OPTIONS

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	Standard Model	HS Model
Dimensions	25 x 50 x 60 cm (10" x 20" x 23.6") Weight 25 kg (55lbf)	25 x 50 x 95 cm (10" x 20" x 37.4") Weight 40 kg (88lbf)
Power	110V~220V AC 4A (Maximum)	



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[mshapiro@gibraltar8.com](mailto:mshapiro@gibraltar8.com) | 847-383-5442  
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## SAS CT-200

200N / 45.0LBF CAPACITY

C-FRAME COMPRESSION/EXTENSION SPRING TESTER

SERVO DRIVEN, PC CONTROLLED

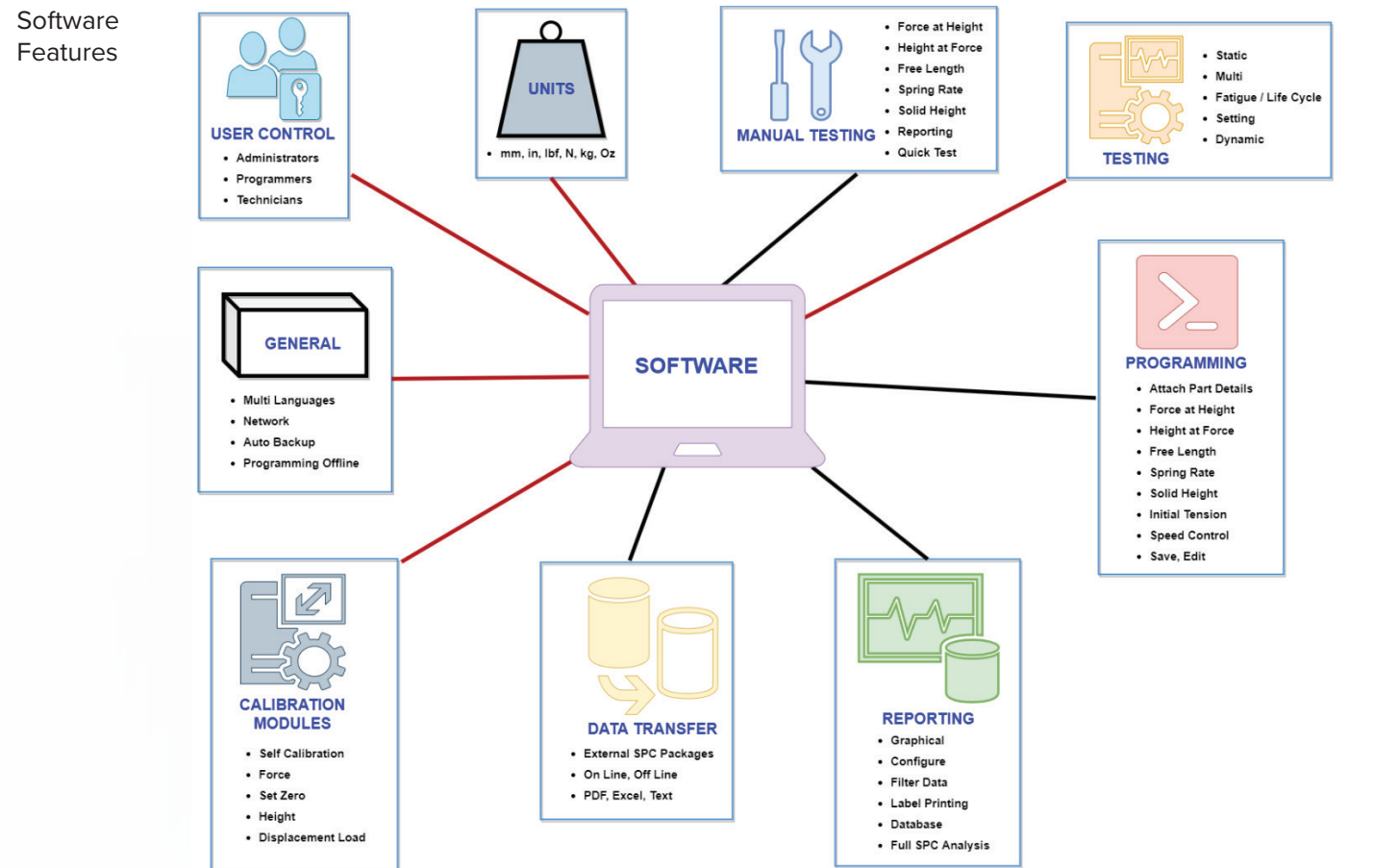


Standard Model

HS Model

## SPECIFICATIONS

Load	<p>Recommended Load Capacity 200N (45.0lbf)</p> <p>Recommended Minimum test load 1.0N (0.225lbf)</p> <p>Load Resolution 0.004N (0.00090lbf)</p> <p>Load Accuracy per ISO 7500 /1 Class 0.5 (0.5% of load, between 0.5% capacity up to full capacity)</p> <p>Continuous digital display or Force/Load height graphical analysis tools and display</p> <p>Safe overload to 150% of FS (compression and tension overload protection at 100% of FS load)</p>
Stroke	<p>Stroke 200mm (8") Standard</p> <p>500mm (20") Optional for Standard Model</p> <p><b>500mm (20") HS Model</b></p> <p><b>1000mm(40") Optional for HS Model</b></p> <p>Resolution: 0.003mm (0.0002") for 200 stroke, - Standard Model</p> <p>Resolution: 0.008mm (0.0005") for 500mm stroke –Optional for Standard Model</p> <p><b>Resolution: 0.00025mm (0.0000098") for 500mm and 1000mm stroke –HS Model</b></p> <p>Accuracy: <math>\pm 0.02\text{mm}</math> (<math>\pm 0.0008"</math>) for 200 stroke on standard model , Accuracy: <math>\pm 0.04\text{mm}</math> (<math>\pm 0.0015"</math>) for 500mm standard model optional stroke. Absolute display of load height above a user defined fixed reference.</p> <p><b>Accuracy: <math>\pm 0.01\text{mm}</math> (<math>\pm 0.00039"</math>) for 500 stroke for HS Model,</b></p> <p><b>Accuracy: better than 0.005mm– Available with independent Calibration for HS Model</b></p>
Test Speeds	<p>1.5mm/s – 15mm/s (3.5"/min – 35.5"/min)</p> <p>4 distinct speed settings available Standard Model</p> <p><b>0.1mm/s – 125mm/s (0.236"/min-295.3"/min) HS Model</b></p> <p><b>12 distinct speed settings available HS Model</b></p>





## SPECIFICATIONS

Platten Diameter	55mm (2.2")
User Interface	SAS software is included with the purchase of the tester. The buyer can purchase the computer from SAS or supply their own. If the buyer supplies their own User Interface SAS will remote into the computer and install the SAS software

## OPTIONS

Computer (Optional)	<ul style="list-style-type: none"> <li>Intel Dual Core (minimum) processor</li> <li>Serial or USB connection to PC for control and data transfer</li> <li>Fully Microsoft Windows 11 compatible</li> <li>Display 17" Monitor</li> </ul>
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Dimensional  
Measurement  
Software with  
150mm Mitutoyo  
Caliper (*Optional*)

Add dimensional measurement to Spring Force Data on a single combined report.

		<b>CT80 Spring Analysis System</b> Results report		Customer: _____ Order Number: _____ Customer Address: _____ Customer Address: _____	
Region Name: _____ No. of springs per batch: _____ Type of spring: _____ Units: _____ Load GW: _____		Spring: _____ Compression: _____ N/mm: _____ 22,000 N		Operator: _____ Operator Name: _____ Drawing Number: _____ Revision: _____	
Nominal: _____ LSL: _____ USL: _____		0.002 0.000 0.004		0.044 0.042 0.047	
No.		F1			
1-1		0.000		0.040	
1-2		0.000		0.047	
1-3		0.000		0.046	
1-4		0.000		0.046	
1-5		0.000		0.047	
2-1		0.000		0.046	
2-2		0.000		0.046	
2-3		0.000		0.046	
2-4		0.000		0.046	
2-5		0.000		0.046	
Min		0.000		0.040	
Max		0.000		0.047	
Avg		0.000		0.046	
STD		0.000		0.001	
Std		0.000		0.000	
CpK		0.000		0.007	
+Tol		0		0	
-Tol		0		0	
(Tol)		0		0	

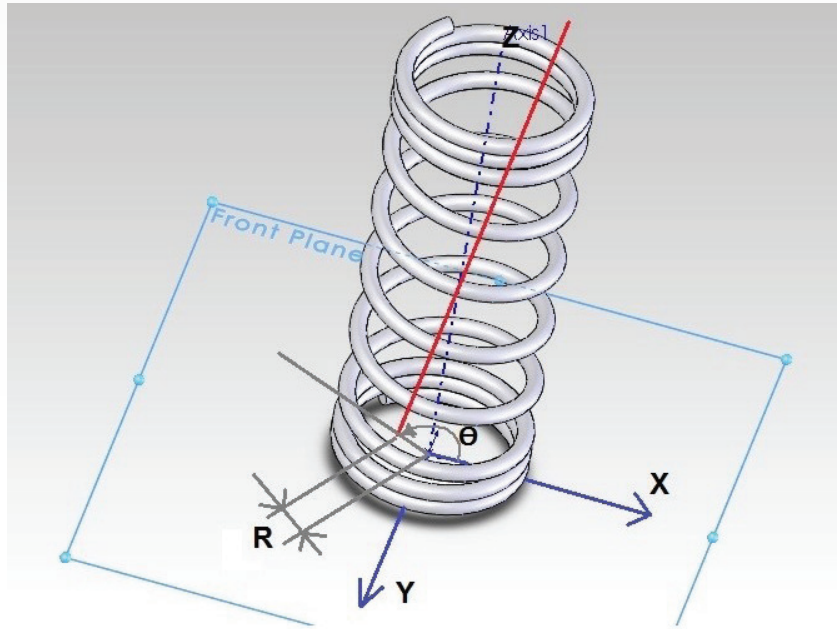
### Buckling Prevention Pins and Fixtures (Optional)

Allows the safe testing of springs that are flimsy or tend to buckle.



## OPTIONS

Conductive Free Length (Optional)	Conductive Free Length (CFL) sensing utilizes a digital input connected directly to the servo controller to determine the spring free length by electrical conduction using a 3.5kHz sampling rate. When measured by CFL the results are independent of the spring rate which provides a highly accurate measurement at a 10X speed versus the standard force sensing method. The tested spring must be both electrically conductive and free of scale, oil, or dirt.
Load Vector Module (Optional)	A module designed to measure side loads, in plane, and out of plane forces acting on a spring. Vector analysis of the Spring Forces. Available for 500N models and larger.



## FORCES MEASURED BY LVA UNIT

Fn	Axial Vertical Forces measured on standard loadcells
SULx	Force in the X in-plane direction.
SULy	Force in the Y in-plane direction.
SULr	Resultant force in the XY plane.
SULrp	XY plane vector pierce point as a radius from the part center (polar coordinate).
SULθp	XY plane angle to pierce point (polar coordinate – refer to SULrp).
SULxz	Angle of the force vector projected onto the XZ plane
SULyz	Angle of the force vector projected onto the YZ plane.

## SPECIFICATIONS

	Standard Model	HS Model
Dimensions	25 x 50 x 60 cm (10" x 20" x 23.6") Weight 25 kg (55lbf)	25 x 50 x 95 cm (10" x 20" x 37.4") Weight 40 kg (88lbf)
Power	110V~220V AC 4A (Maximum)	



Michael Shapiro, Janet Montes, Yuval Terem  
[mshapiro@gibraltar8.com](mailto:mshapiro@gibraltar8.com) | 847-383-5442  
 1945 Techny Road, Unit 5, Northbrook, IL 60062





## SAS CT-500

500N / 112.1LBF CAPACITY

C-FRAME COMPRESSION/EXTENSION SPRING TESTER

SERVO DRIVEN, PC CONTROLLED



Standard Model

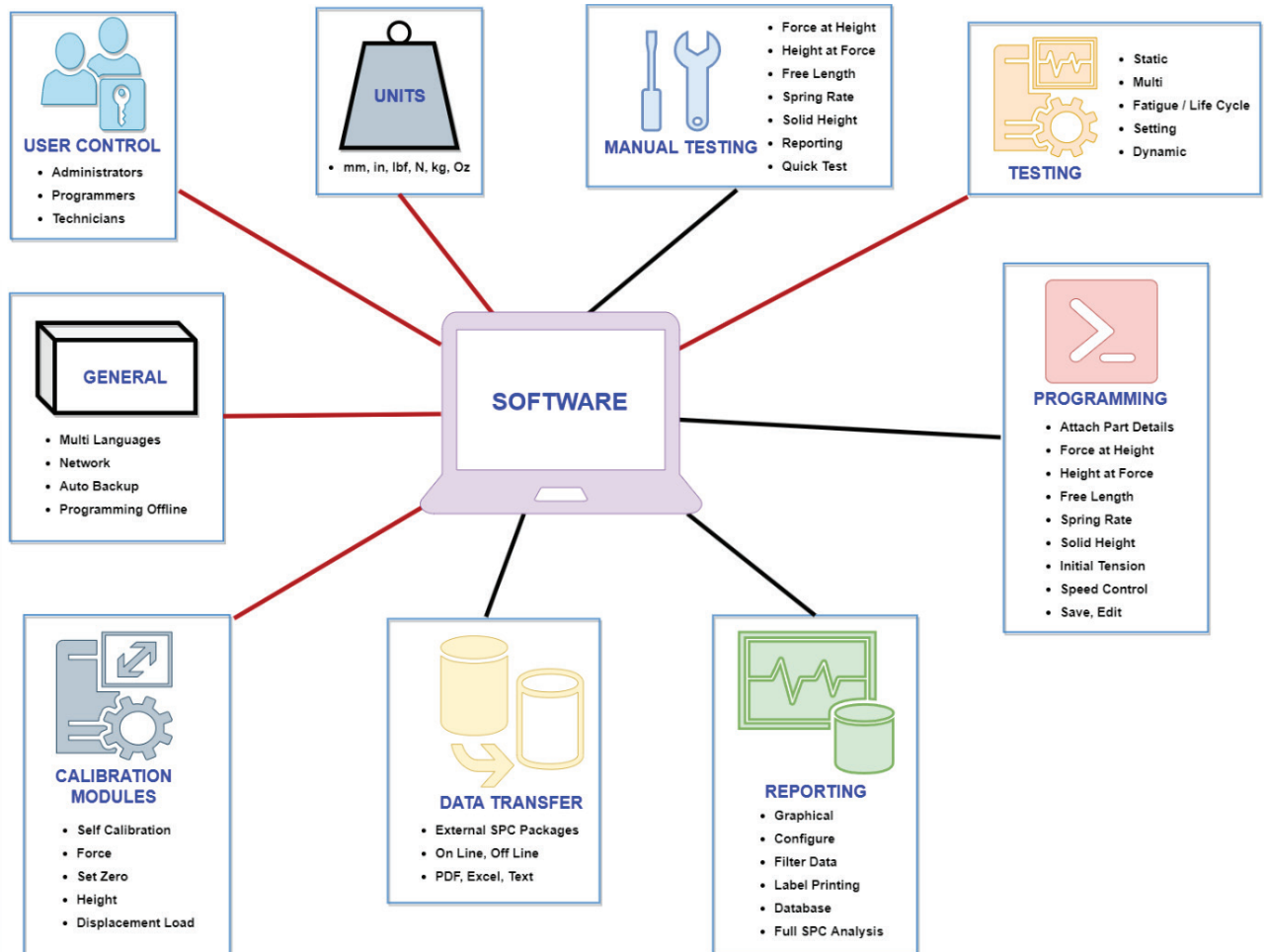
HS Model



## SPECIFICATIONS

Load	<p>Recommended Load Capacity 500N (112.1lbf)</p> <p>Recommended Minimum test load 2.5N (0.5605lbf)</p> <p>Load Resolution 0.001N (0.00225lbf)</p> <p>Load Accuracy per ISO 7500 /1 Class 0.5 (0.5% of load, between 0.5% capacity up to full capacity)</p> <p>Continuous digital display or Force/Load height graphical analysis tools and display</p> <p>Safe overload to 150% of FS (compression and tension overload protection at 100% of FS load)</p>
Stroke	<p>Stroke 200mm (8") Standard</p> <p>500mm (20") Optional for Standard Model</p> <p><b>500mm (20") HS Model</b></p> <p><b>1000mm(40") Optional for HS Model</b></p> <p>Resolution: 0.003mm (0.0002") for 200 stroke, - Standard Model</p> <p>Resolution: 0.008mm (0.0005") for 500mm stroke –Optional for Standard Model</p> <p><b>Resolution: 0.00025mm (0.0000098") for 500mm and 1000mm stroke –HS Model</b></p> <p>Accuracy: <math>\pm 0.02\text{mm}</math> (<math>\pm 0.0008"</math>) for 200 stroke on standard model , Accuracy: <math>\pm 0.04\text{mm}</math> (<math>\pm 0.0015"</math>) for 500mm standard model optional stroke. Absolute display of load height above a user defined fixed reference.</p> <p><b>Accuracy: <math>\pm 0.01\text{mm}</math> (<math>\pm 0.00039"</math>) for 500 stroke for HS Model,</b></p> <p><b>Accuracy: better than 0.005mm– Available with independent Calibration for HS Model</b></p>
Test Speeds	<p>1.5mm/s - 15mm/s (3.5"/min – 35.5"/min), 4 distinct speed settings available Standard Model</p> <p><b>0.1mm/s - 125mm/s (0.236"/min-295.3"/min) HS Model, 12 distinct speed settings available HS Model</b></p>

### Software Features



## SPECIFICATIONS

Platten  
Diameter 55mm (2.2")

User Interface SAS software is included with the purchase of the tester. The buyer can purchase the computer from SAS or supply their own. If the buyer supplies their own User Interface SAS will remote into the computer and install the SAS software

## OPTIONS

Computer  
(Optional) Intel Dual Core (minimum) processor  
Serial or USB connection to PC for control and data transfer  
Fully Microsoft Windows 11 compatible  
Display 17" Monitor

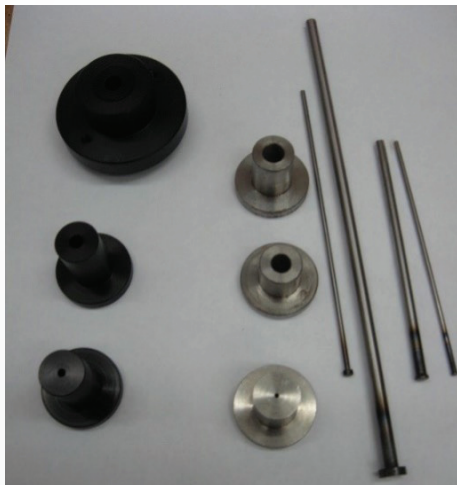
Dimensional  
Measurement  
Software with  
150mm Mitutoyo  
Caliper (Optional)

Add dimensional measurement to Spring Force Data on a single combined report.

SAS Inc. Spring Analysis Systems			CT50 Spring Analysis System Results report:			Customer: Order Number: Customer Address1: Customer Address2:		
Machine name:	147008		Department:	S		Operator:	Admin	
No. of springs per batch:	5		Part name:	147008		Operator Name:		
Type of spring:	Compression		Part number:	147008		Drawing Number:		
Units:	N, mm					Revision:		
Load Cell:	22.000 N							
Normal:	0.002	0.004						
LSL:	0.000	0.002						
USL:	0.004	0.007						
Pos.	PS							
1-1	0.000	0.000						
1-2	0.000	0.000						
1-3	0.000	0.000						
1-4	0.000	0.000						
1-5	0.000	0.000						
2-1	0.000	0.000						
2-2	0.000	0.000						
2-3	0.000	0.000						
2-4	0.000	0.000						
2-5	0.000	0.000						
Max	0.000	0.000						
Min	0.000	0.000						
Std	0.000	0.000						
MP	0.000	0.000						
SD	0.000	0.000						
CP	0.000	0.000						
+Tol	0	0						
-Tol	0	0						
ETol	0	0						

Buckling  
Prevention Pins  
and Fixtures  
(Optional)

Allows the safe testing of springs that are flimsy or tend to buckle.



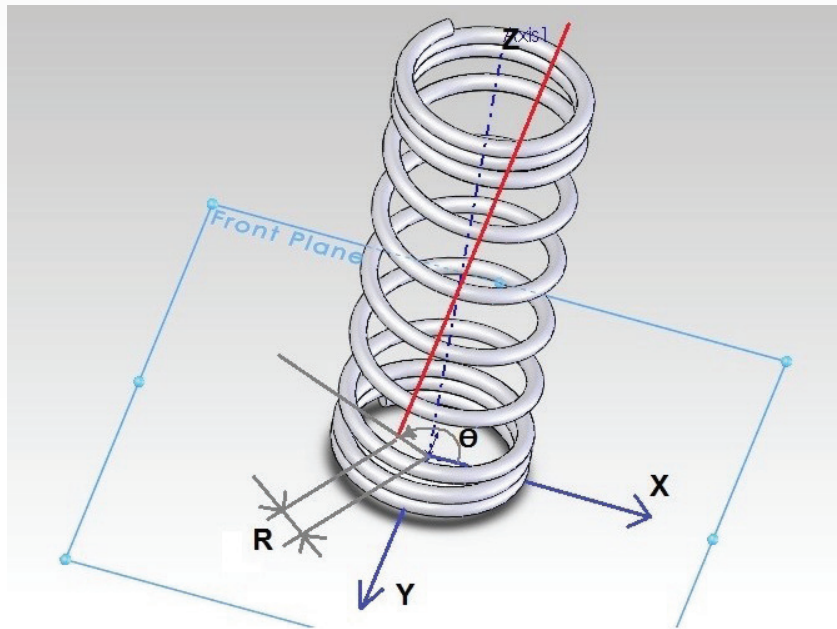
## OPTIONS

### Conductive Free Length (Optional)

Conductive Free Length (CFL) sensing utilizes a digital input connected directly to the servo controller to determine the spring free length by electrical conduction using a 3.5kHz sampling rate. When measured by CFL the results are independent of the spring rate which provides a highly accurate measurement at a 10X speed versus the standard force sensing method. The tested spring must be both electrically conductive and free of scale, oil, or dirt.

### Load Vector Module (Optional)

A module designed to measure side loads, in plane, and out of plane forces acting on a spring. Vector analysis of the Spring Forces. Available for 500N models and larger.



## FORCES MEASURED BY LVA UNIT

Fn	Axial Vertical Forces measured on standard loadcells
SULx	Force in the X in-plane direction.
SULy	Force in the Y in-plane direction.
SULr	Resultant force in the XY plane.
SULrp	XY plane vector pierce point as a radius from the part center (polar coordinate).
SULθp	XY plane angle to pierce point (polar coordinate – refer to SULrp).
SULxz	Angle of the force vector projected onto the XZ plane
SULyz	Angle of the force vector projected onto the YZ plane.

## SPECIFICATIONS

	Standard Model	HS Model
Dimensions	25 x 50 x 60 cm (10" x 20" x 23.6") Weight 25 kg (55lbf)	25 x 50 x 95 cm (10" x 20" x 37.4") Weight 40 kg (88lbf)
Power	110V~220V AC 4A (Maximum)	



Michael Shapiro, Janet Montes, Yuval Terem  
[mshapiro@gibraltar8.com](mailto:mshapiro@gibraltar8.com) | 847-383-5442  
 1945 Techny Road, Unit 5, Northbrook, IL 60062







## SAS CT-2000

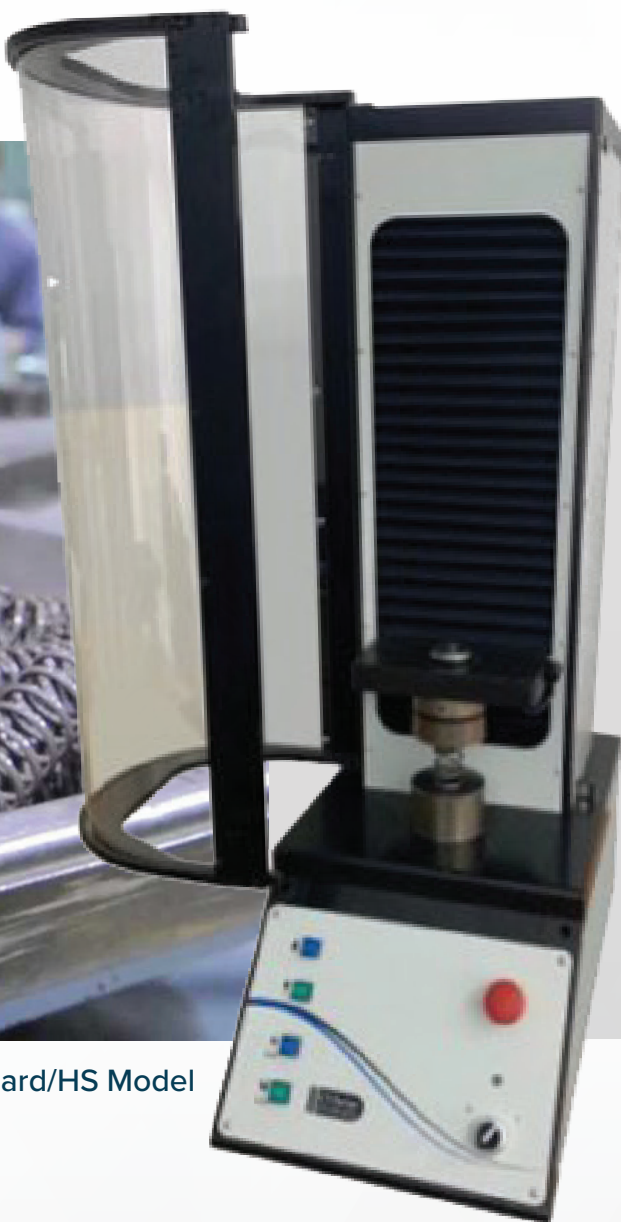
2000N / 450.0LBF CAPACITY

C-FRAME COMPRESSION/EXTENSION SPRING TESTER

SERVO DRIVEN, PC CONTROLLED



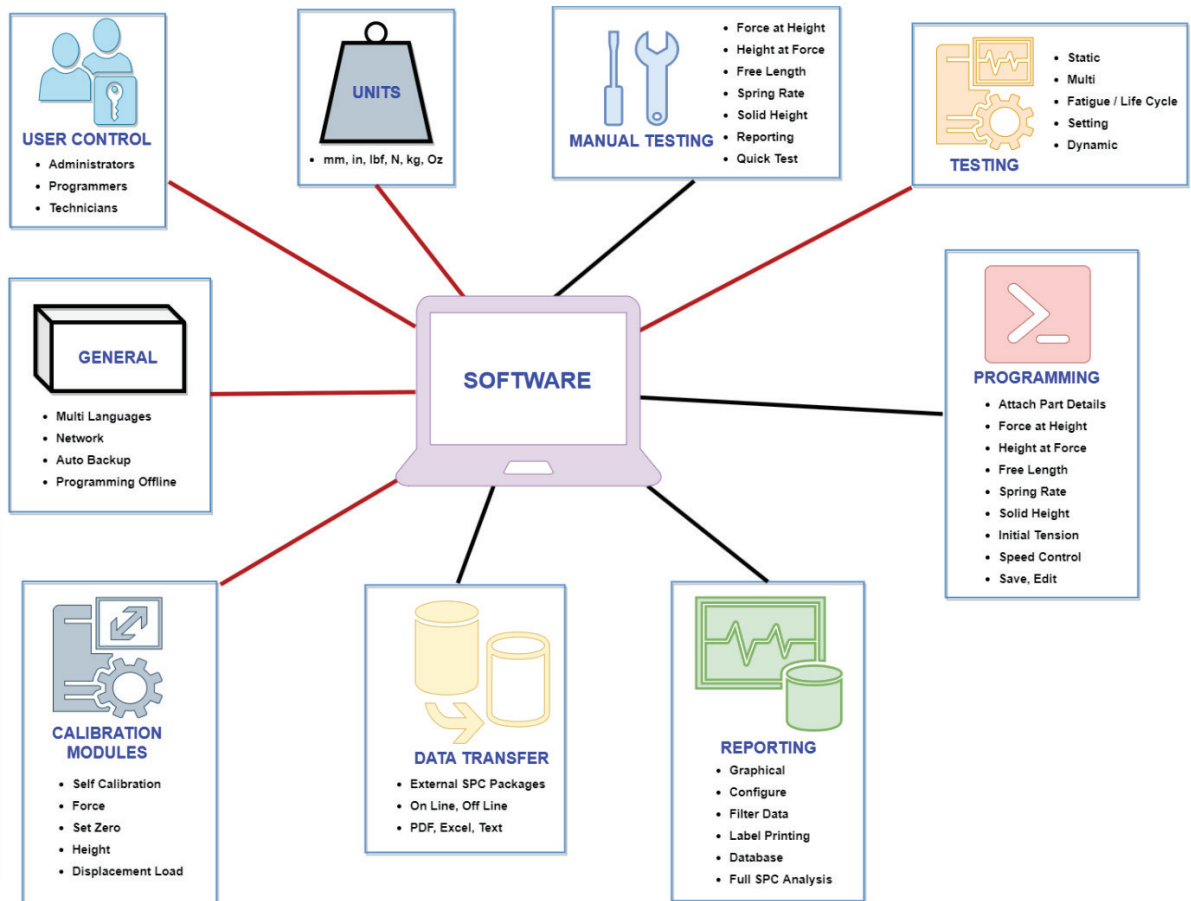
Standard/HS Model



## SPECIFICATIONS

Load	<p>Recommended Load Capacity 2000N (450.0lbf)</p> <p>Recommended Minimum test load 10.0N (2.25lbf)</p> <p>Load Resolution 0.04N (0.0090lbf)</p> <p>Load Accuracy per ISO 7500 /1 Class 0.5 (0.5% of load, between 0.5% capacity up to full capacity)</p> <p>Continuous digital display or Force/Load height graphical analysis tools and display</p> <p>Safe overload to 150% of FS (compression and tension overload protection at 100% of FS load)</p>
Stroke	<p>Stroke 200mm (8") Standard</p> <p>500mm (20") Optional for Standard Model</p> <p><b>500mm (20") HS Model</b></p> <p><b>1000mm(40") Optional for HS Model</b></p> <p>Resolution: 0.003mm (0.0002") for 200 stroke, - Standard Model</p> <p>Resolution: 0.008mm (0.0005") for 500mm stroke –Optional for Standard Model</p> <p><b>Resolution: 0.00025mm (0.0000098") for 500mm and 1000mm stroke –HS Model</b></p> <p>Accuracy: <math>\pm 0.02\text{mm}</math> (<math>\pm 0.0008"</math>) for 200 stroke on standard model , Accuracy: <math>\pm 0.04\text{mm}</math> (<math>\pm 0.0015"</math>) for 500mm standard model optional stroke. Absolute display of load height above a user defined fixed reference.</p> <p><b>Accuracy: <math>\pm 0.01\text{mm}</math> (<math>\pm 0.00039"</math>) for 500 stroke for HS Model,</b></p> <p><b>Accuracy: better than 0.005mm– Available with independent Calibration for HS Model</b></p>
Test Speeds	<p>1.5mm/s – 15mm/s (3.5"/min – 35.5"/min)</p> <p>4 distinct speed settings available Standard Model</p> <p><b>0.1mm/s – 125mm/s (0.236"/min-295.3"/min) HS Model</b></p> <p><b>12 distinct speed settings available HS Model</b></p>

### Software Features



## SPECIFICATIONS

Platten  
Diameter 55mm (2.2")

User Interface SAS software is included with the purchase of the tester. The buyer can purchase the computer from SAS or supply their own. If the buyer supplies their own User Interface SAS will remote into the computer and install the SAS software

## OPTIONS

Computer  
(Optional) Intel Dual Core (minimum) processor  
Serial or USB connection to PC for control and data transfer  
Fully Microsoft Windows 11 compatible  
Display 17" Monitor

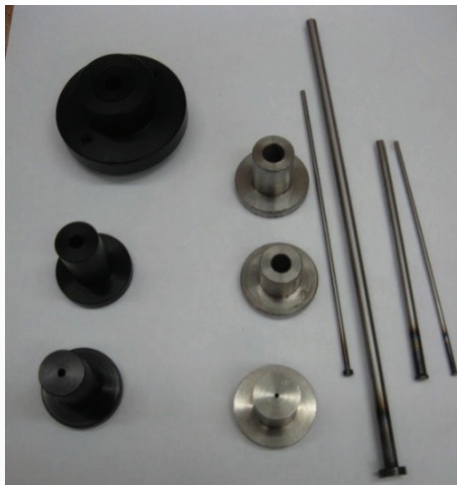
Dimensional  
Measurement  
Software with  
150mm Mitutoyo  
Caliper (Optional)

Add dimensional measurement to Spring Force Data on a single combined report.

			CT50 Spring Analysis System Results report			Customer: Order Number: Customer Address1: Customer Address2:								
Machine name: No of springs per batch: Type of spring: Units: Load Cell:			147008 5 Compression N, mm 22.222 N			Department: Part name: Part number: Revision:			Operator: Operator Name: Drawing Number: Revision:			Admin		
Normal: LSL: USL:			0.002 0.000 0.004			0.044 0.042 0.047								
Pos.			PS											
1-1			0.000			0.040								
1-2			0.000			0.047								
1-3			0.000			0.040								
1-4			0.000			0.040								
1-5			0.000			0.047								
2-1			0.000			0.040								
2-2			0.000			0.040								
2-3			0.000			0.040								
2-4			0.000			0.040								
2-5			0.000			0.040								
Max			0.000			0.040								
Min			0.000			0.047								
Std			0.000			0.040								
MPD			0.000			0.040								
SDV			0.000			0.040								
CPK			0.000			0.040								
+Tol			0			0								
-Tol			0			0								
ETol			10			10								

Buckling  
Prevention Pins  
and Fixtures  
(Optional)

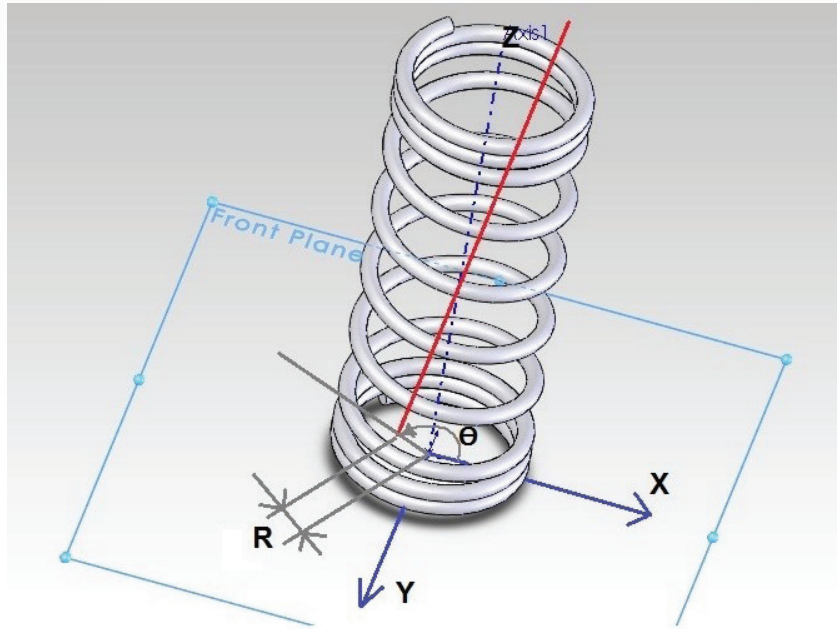
Allows the safe testing of springs that are flimsy or tend to buckle.





## OPTIONS

Conductive Free Length (Optional)	Conductive Free Length (CFL) sensing utilizes a digital input connected directly to the servo controller to determine the spring free length by electrical conduction using a 3.5kHz sampling rate. When measured by CFL the results are independent of the spring rate which provides a highly accurate measurement at a 10X speed versus the standard force sensing method. The tested spring must be both electrically conductive and free of scale, oil, or dirt.
Load Vector Module (Optional)	A module designed to measure side loads, in plane, and out of plane forces acting on a spring. Vector analysis of the Spring Forces. Available for 500N models and larger.



## FORCES MEASURED BY LVA UNIT

Fn	Axial Vertical Forces measured on standard loadcells
SULx	Force in the X in-plane direction.
SULy	Force in the Y in-plane direction.
SULr	Resultant force in the XY plane.
SULrp	XY plane vector pierce point as a radius from the part center (polar coordinate).
SUL $\theta$ p	XY plane angle to pierce point (polar coordinate – refer to SULrp).
SULxz	Angle of the force vector projected onto the XZ plane
SULyz	Angle of the force vector projected onto the YZ plane.

## SPECIFICATIONS

	Standard Model	HS Model
Dimensions	32 x 58 x 105 cm (12.6" x 23" x 41.4") Weight 45 kg (99lbf)	32 x 58 x 105 cm (12.6" x 23" x 41.4") Weight 45 kg (99lbf)
Power	110V~220V AC 6A (Maximum)	



Michael Shapiro, Janet Montes, Yuval Terem  
[mshapiro@gibraltar8.com](mailto:mshapiro@gibraltar8.com) | 847-383-5442  
 1945 Techny Road, Unit 5, Northbrook, IL 60062





## SAS CT-5000HS

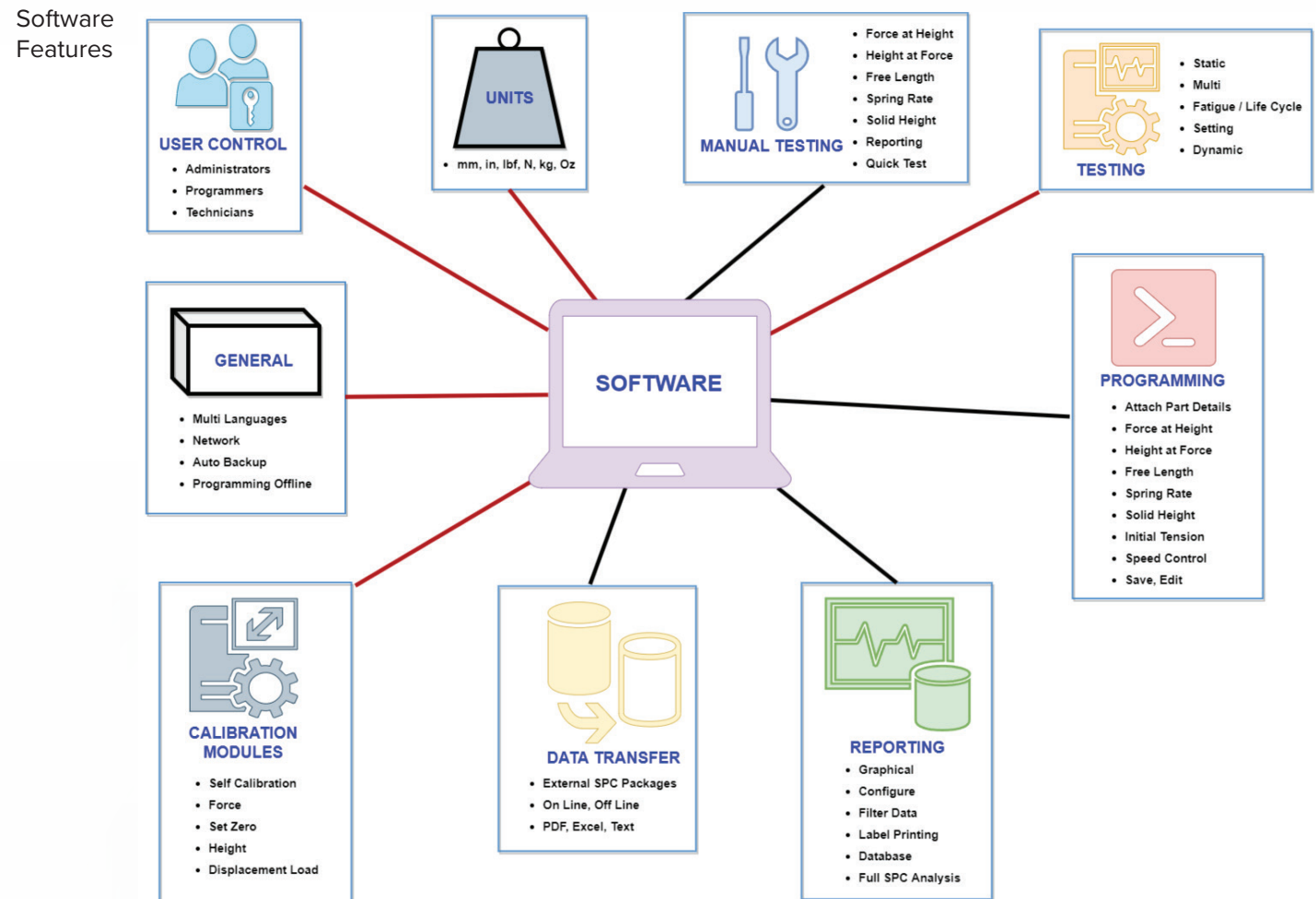
5000N / 1128.0LBF CAPACITY

C-FRAME, SERVO DRIVEN, PC CONTROLLED



## SPECIFICATIONS

Load	<p>Recommended Load Capacity 5000N (1128.0lbf)</p> <p>Recommended Minimum test load 25.0N (5.64lbf)</p> <p>Load Resolution 0.10N (0.0224lbf)</p> <p>Load Accuracy per ISO 7500 /1 Class 0.5 (0.5% of load, between 0.5% capacity up to full capacity)</p> <p>Continuous digital display or Force/Load height graphical analysis tools and display</p> <p>Safe overload to 150% of FS (compression and tension overload protection at 100% of FS load)</p>
Stroke	<p>Stroke 500mm (20")</p> <p><b>1000mm(40") Optional</b></p> <p>Resolution: 0.00025mm (0.0000098")</p> <p>Accuracy: <math>\pm 0.04\text{mm}</math> (<math>\pm 0.0015\text{"}</math>) for 500mm stroke on Standard Models. Absolute display of load height above a user defined fixed reference.</p> <p>Accuracy: <math>\pm 0.01\text{mm}</math> (<math>\pm 0.00039\text{"}</math>)</p> <p>Accuracy: better than 0.005mm– Available with independent Calibration</p>
Test Speeds	<p>0.1mm/s – 125mm/s (0.236"/min-295.3"/min)</p> <p>12 distinct speed settings available</p>





## SPECIFICATIONS

Platten Diameter 120mm (4.7")


User Interface SAS software is included with the purchase of the tester. The buyer can purchase the computer from SAS or supply their own. If the buyer supplies their own User Interface SAS will remote into the computer and install the SAS software

## OPTIONS

Computer (Optional) Intel Dual Core (minimum) processor  
Serial or USB connection to PC for control and data transfer  
Fully Microsoft Windows 11 compatible  
Display 17" Monitor

Dimensional Measurement Software with 150mm Mitutoyo Caliper (Optional)

Add dimensional measurement to Spring Force Data on a single combined report.

			CT50 Spring Analysis System Results report			Customer: Order Number: Customer Address: Customer Address:								
Machine name: No. of springs per batch: Type of spring: Units: Load Cell:			147008 5 Compression N, mm 22.000 N			Department: Part name: Part # name: 1:			Operator: Operator Name: Drawing Number: Revision:			Admin		
Normal: LSL: USL:			0.002 0.000 0.004			0.044 0.042 0.047								
Pos.			PS											
1-1			0.000			0.040								
1-2			0.000			0.047								
1-3			0.000			0.040								
1-4			0.000			0.040								
1-5			0.000			0.047								
2-1			0.000			0.040								
2-2			0.000			0.040								
2-3			0.000			0.040								
2-4			0.000			0.040								
2-5			0.000			0.040								
Max			0.000			0.040								
Min			0.000			0.047								
Std			0.000			0.040								
MP			0.000			0.040								
Std			0.000			0.040								
CPK			0.000			0.040								
+Tol			0			0								
-Tol			0			0								
CTI			10			10								

Buckling Prevention Pins and Fixtures (Optional)

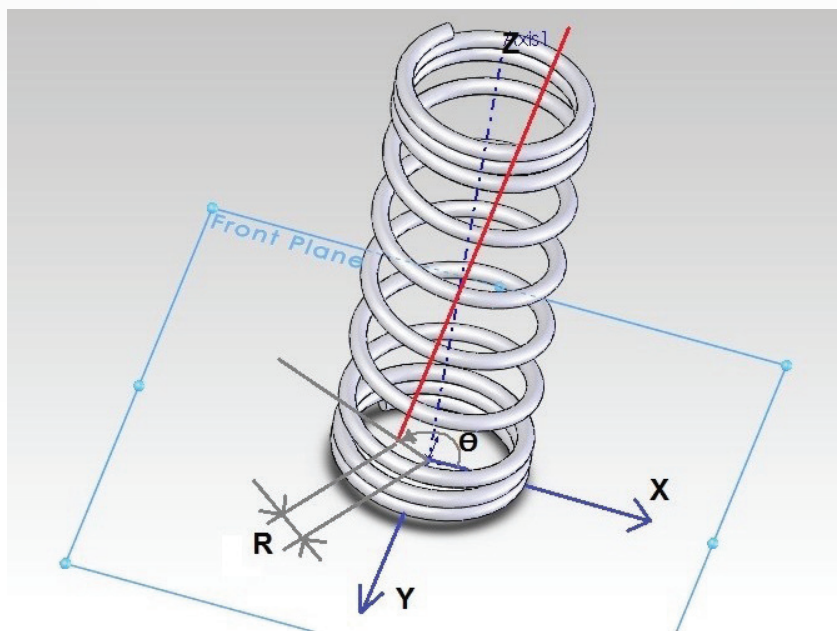
Allows the safe testing of springs that are flimsy or tend to buckle.



## OPTIONS

Conductive Free Length (Optional)	Conductive Free Length (CFL) sensing utilizes a digital input connected directly to the servo controller to determine the spring free length by electrical conduction using a 3.5kHz sampling rate. When measured by CFL the results are independent of the spring rate which provides a highly accurate measurement at a 10X speed versus the standard force sensing method. The tested spring must be both electrically conductive and free of scale, oil, or dirt.
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Load Vector Module (Optional)	A module designed to measure side loads, in plane, and out of plane forces acting on a spring. Vector analysis of the Spring Forces. Available for 500N models and larger.
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## FORCES MEASURED BY LVA UNIT

Fn	Axial Vertical Forces measured on standard loadcells
SULx	Force in the X in-plane direction.
SULy	Force in the Y in-plane direction.
SULr	Resultant force in the XY plane.
SULrp	XY plane vector pierce point as a radius from the part center (polar coordinate).
SULθp	XY plane angle to pierce point (polar coordinate – refer to SULrp).
SULxz	Angle of the force vector projected onto the XZ plane
SULyz	Angle of the force vector projected onto the YZ plane.

## SPECIFICATIONS

Dimensions	<b>HS Model</b> 32 x 70 x 115 cm (12.6" x 27.5" x 45.2") Weight 200 kg (440lbf)
Power	110V~220V AC 9A (Maximum)



Michael Shapiro, Janet Montes, Yuval Terem  
**mshapiro@gibraltar8.com | 847-383-5442**  
 1945 Techny Road, Unit 5, Northbrook, IL 60062



WWW.GIBRALTAR8.COM

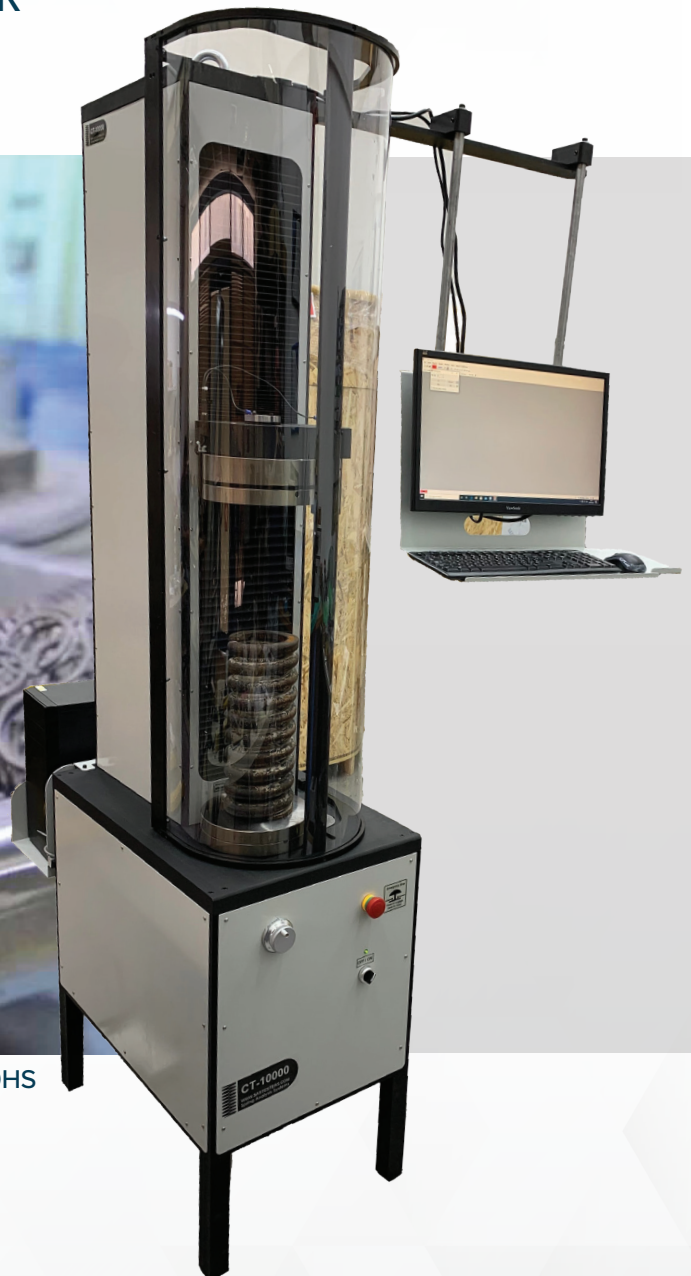


## SAS CT-20000HS

20000N / 4500.0LBF CAPACITY  
C-FRAME COMPRESSION / EXTENSION SPRING TESTER  
SERVO DRIVEN WITH PC AND MONITOR  
FLOOR STANDING



CT-20000HS

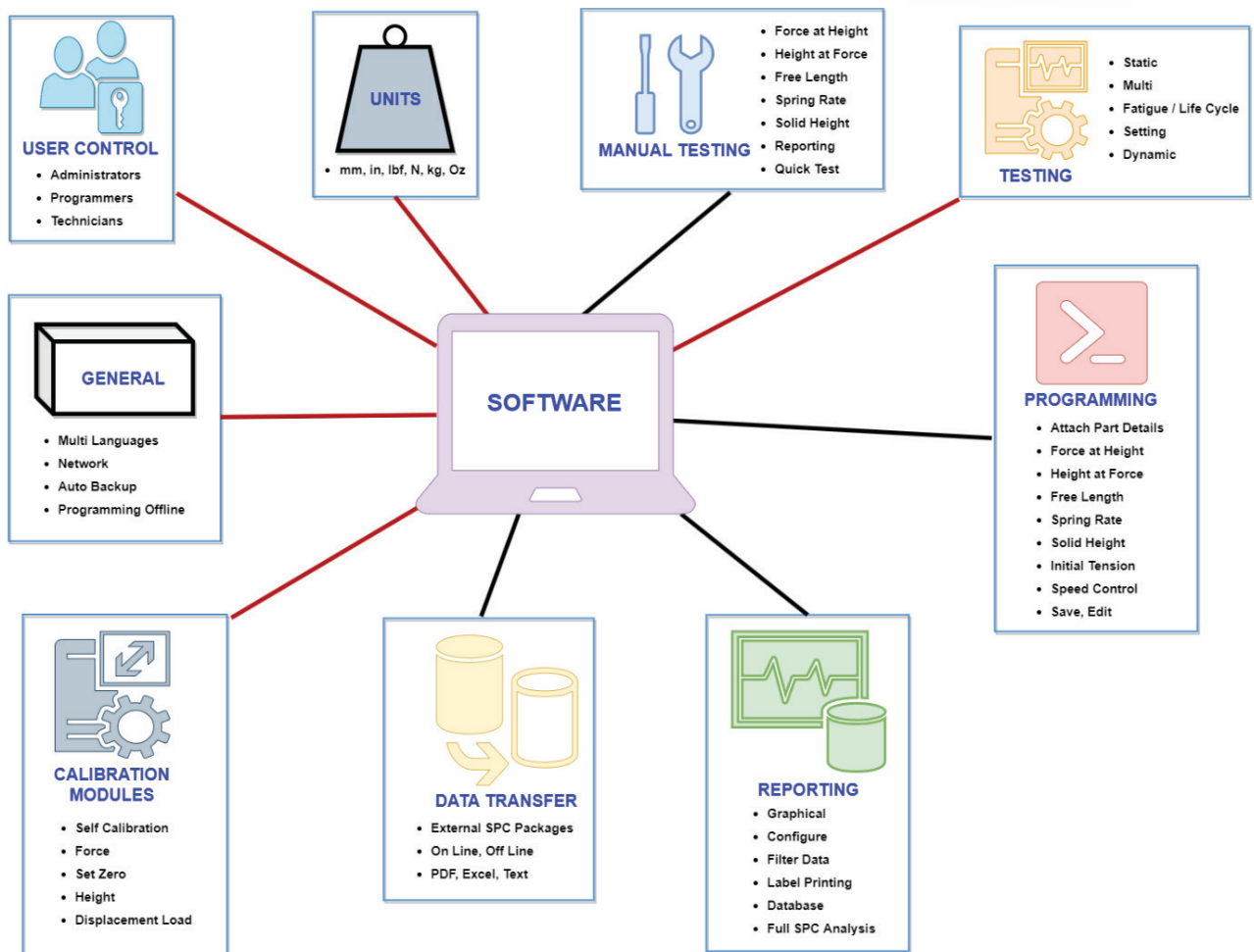




## SPECIFICATIONS

Load	<p>Recommended Load Capacity 20000N (4500.0lbf)</p> <p>Recommended Minimum test load 100N (22.5lbf)</p> <p>Load Resolution 0.40N (0.08lbf)</p> <p>Load Accuracy per ISO 7500 /1 Class 0.5 (0.5% of load, between 0.5% capacity up to full capacity)</p> <p>Continuous digital display or Force/Load height graphical analysis tools and display</p> <p>Safe overload to 150% of FS (compression and tension overload protection at 100% of FS load)</p>
Stroke	<p>Stroke 500mm (20") for both Standard and HS Models</p> <p>Resolution: 0.0001mm (0.0000039") for 500mm stroke</p> <p>Accuracy: <math>\pm 0.01\text{mm}</math> (<math>\pm 0.00039"</math>) for 500 stroke: better than 0.005mm</p> <p>Available with independent Calibration for HR Model</p>
Test Speeds	<p>0.1mm/s – 30mm/s (0.236"/min-71"/min)</p> <p>12 distinct speed settings available</p>

### Software Features



## SPECIFICATIONS

Platten Diameter	200mm (8")
User Interface	SAS software is included with the purchase of the tester. The buyer can purchase the computer from SAS or supply their own. If the buyer supplies their own User Interface SAS will remote into the computer and install the SAS software
Computer	Intel Dual Core (minimum) processor Serial or USB connection to PC for control and data transfer Fully Microsoft Windows 11 compatible Display 17" Monitor

## OPTIONS

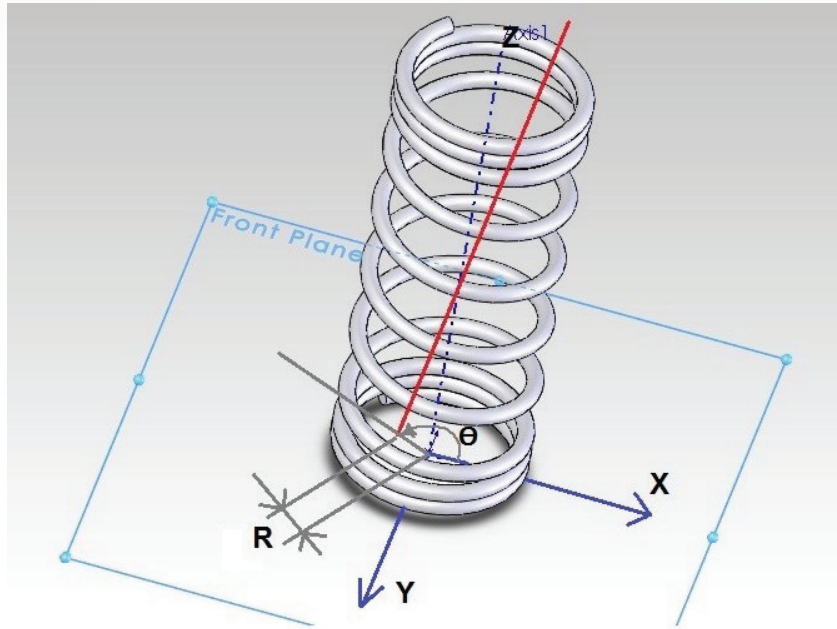
Dimensional Measurement Software with 150mm Mitutoyo Caliper (Optional)

Add dimensional measurement to Spring Force Data on a single combined report.

			CT50 Spring Analysis System Results report			Customer: Order Number: Customer Address1: Customer Address2:		
Machine name: No. of springs per batch: Type of spring: Units: Load Cell:			147008 5 Compression N, mm 22.000 N			Department: Part name: Part number: Revision:		
Operator: Operator Name: Drawing Number: Revision:			Admin					
Normal: LSL: USL:			0.002 0.000 0.004 0.004 0.002 0.007					
Pos.			PS					
1-1			0.000 0					

## OPTIONS

Conductive Free Length (Optional)	Conductive Free Length (CFL) sensing utilizes a digital input connected directly to the servo controller to determine the spring free length by electrical conduction using a 3.5kHz sampling rate. When measured by CFL the results are independent of the spring rate which provides a highly accurate measurement at a 10X speed versus the standard force sensing method. The tested spring must be both electrically conductive and free of scale, oil, or dirt.
Load Vector Module (Optional)	A module designed to measure side loads, in plane, and out of plane forces acting on a spring. Vector analysis of the Spring Forces. Available for 500N models and larger.



## FORCES MEASURED BY LVA UNIT

Fn	Axial Vertical Forces measured on standard loadcells
SULx	Force in the X in-plane direction.
SULy	Force in the Y in-plane direction.
SULr	Resultant force in the XY plane.
SULrp	XY plane vector pierce point as a radius from the part center (polar coordinate).
SULθp	XY plane angle to pierce point (polar coordinate – refer to SULrp).
SULxz	Angle of the force vector projected onto the XZ plane
SULyz	Angle of the force vector projected onto the YZ plane.

## SPECIFICATIONS

Dimensions	40 x 85 x 120 cm (15.7" x 22.83" x 47.25") Weight 240 kg (528lbf)
Power	110V~220V AC 9A (Maximum)



Michael Shapiro, Janet Montes, Yuval Terem  
[mshapiro@gibraltar8.com](mailto:mshapiro@gibraltar8.com) | 847-383-5442  
 1945 Techny Road, Unit 5, Northbrook, IL 60062







## SAS CT-10000HS

10000N / 2243.0LBF CAPACITY

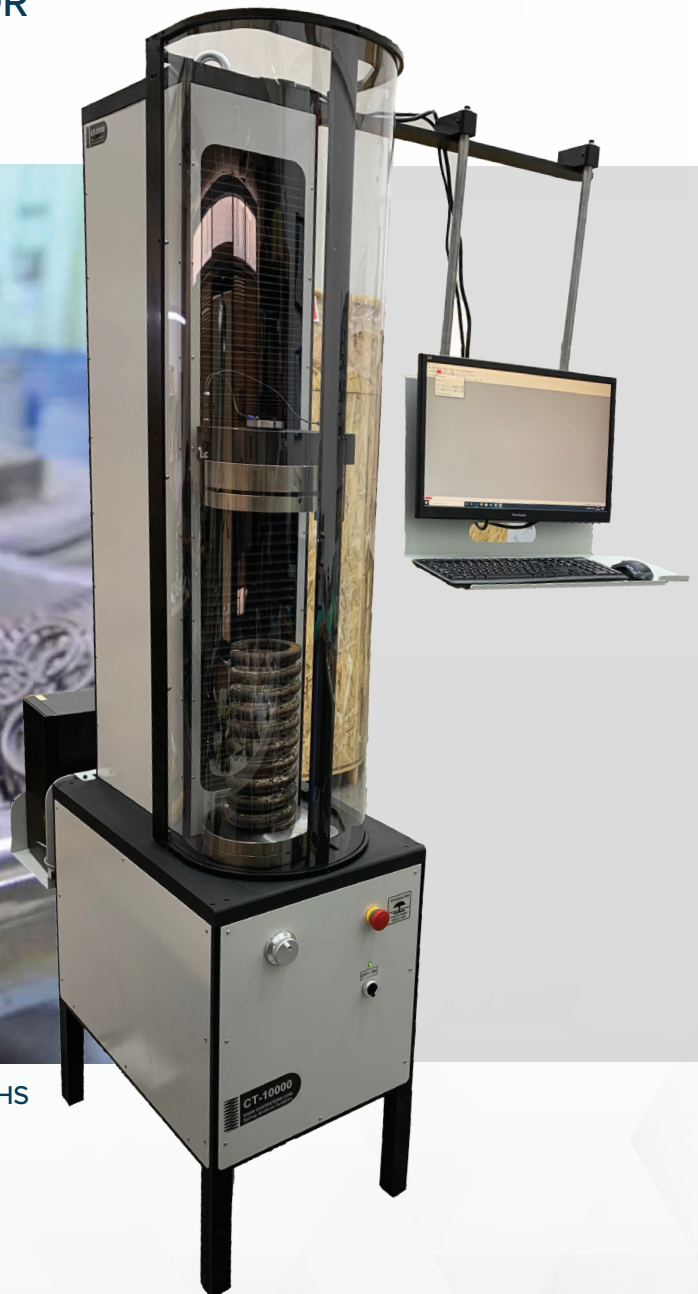
C-FRAME COMPRESSION / EXTENSION SPRING TESTER

SERVO DRIVEN WITH PC AND MONITOR

FLOOR STANDING



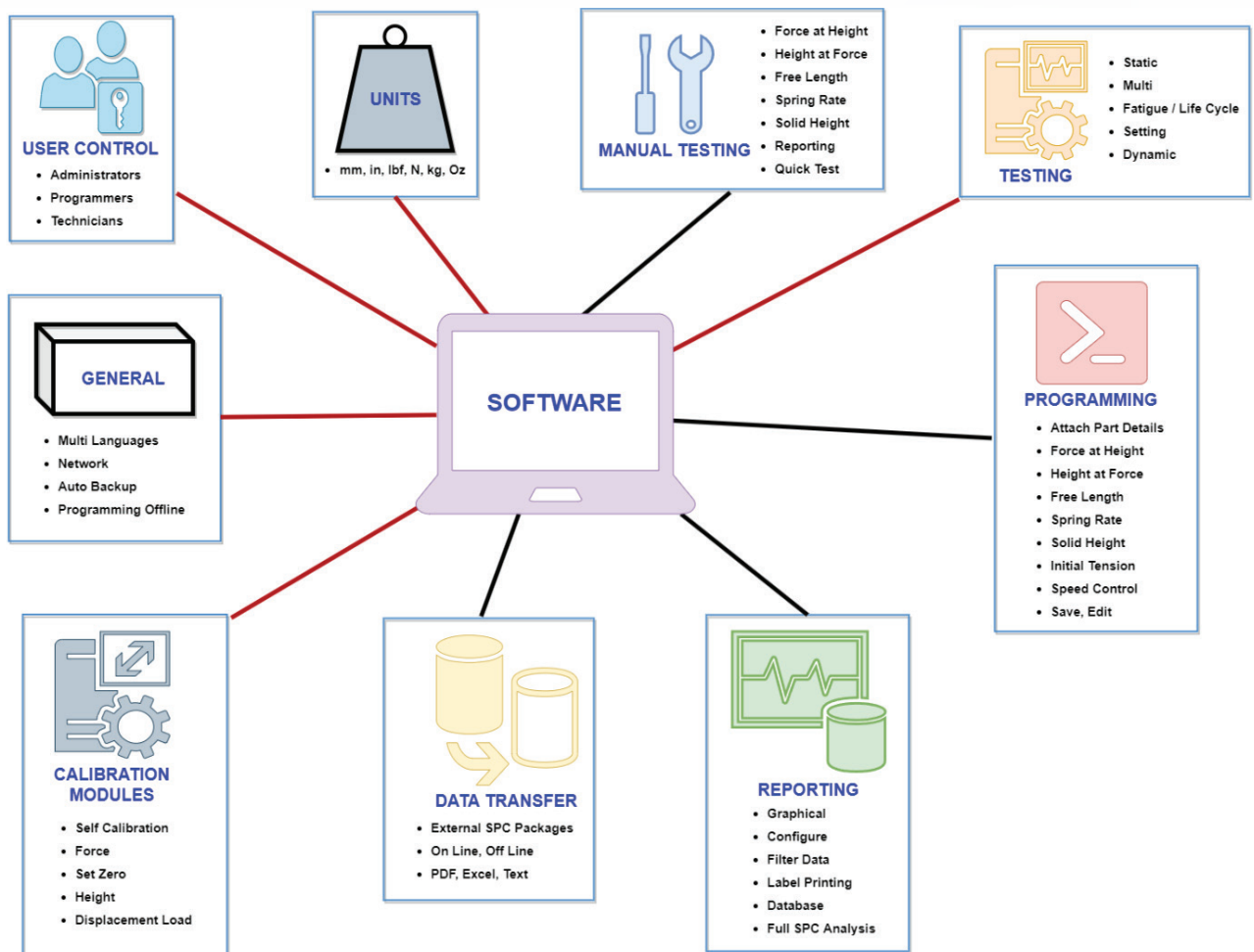
CT-10000HS



## SPECIFICATIONS

Load	<p>Recommended Load Capacity 10000N (2243.0lbf)</p> <p>Recommended Minimum test load 50N (11.2lbf)</p> <p>Load Resolution 0.20N (0.04lbf)</p> <p>Load Accuracy per ISO 7500 /1 Class 0.5 (0.5% of load, between 0.5% capacity up to full capacity)</p> <p>Continuous digital display or Force/Load height graphical analysis tools and display</p> <p>Safe overload to 150% of FS (compression and tension overload protection at 100% of FS load)</p>
Stroke	<p>Stroke 10000mm (20") for both Standard and HS Models</p> <p>Resolution: 0.0001mm (0.0000039") for 500mm stroke</p> <p>Accuracy: <math>\pm 0.01\text{mm}</math> (<math>\pm 0.00039"</math>) for 500 stroke: better than 0.005mm</p> <p>Available with independent Calibration for HR Model</p>
Test Speeds	<p>0.1mm/s – 50mm/s (0.236"/min-120"/min)</p> <p>12 distinct speed settings available</p>

### Software Features



## SPECIFICATIONS

Platten Diameter	200mm (8")
User Interface	SAS software is included with the purchase of the tester. The buyer can purchase the computer from SAS or supply their own. If the buyer supplies their own User Interface SAS will remote into the computer and install the SAS software
Computer	Intel Dual Core (minimum) processor Serial or USB connection to PC for control and data transfer Fully Microsoft Windows 11 compatible Display 17" Monitor

## OPTIONS

Dimensional Measurement Software with 150mm Mitutoyo Caliper (Optional)

Add dimensional measurement to Spring Force Data on a single combined report.

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Machine name: No. of springs per batch: Type of spring: Units: Load Cell:			147008 5 Compression N, mm 22.222 N			Department: Part name: Part number: Revision:			Operator: Operator Name: Drawing Number: Revision:			Admin		
Normal: LSL: USL:			0.002 0.000 0.004			0.044 0.042 0.047								
Pos.			PS											
1-1			0.000			0.040								
1-2			0.000			0.047								
1-3			0.000			0.040								
1-4			0.000			0.040								
1-5			0.000			0.047								
2-1			0.000			0.040								
2-2			0.000			0.040								
2-3			0.000			0.040								
2-4			0.000			0.040								
2-5			0.000			0.040								
Max			0.000			0.040								
Min			0.000			0.047								
Std			0.000			0.040								
MP			0.000			0.040								
SD			0.000			0.040								
CP			0.000			0.040								
+Tol			0			0								
-Tol			0			0								
ETol			10			10								

Buckling Prevention Pins and Fixtures (Optional)

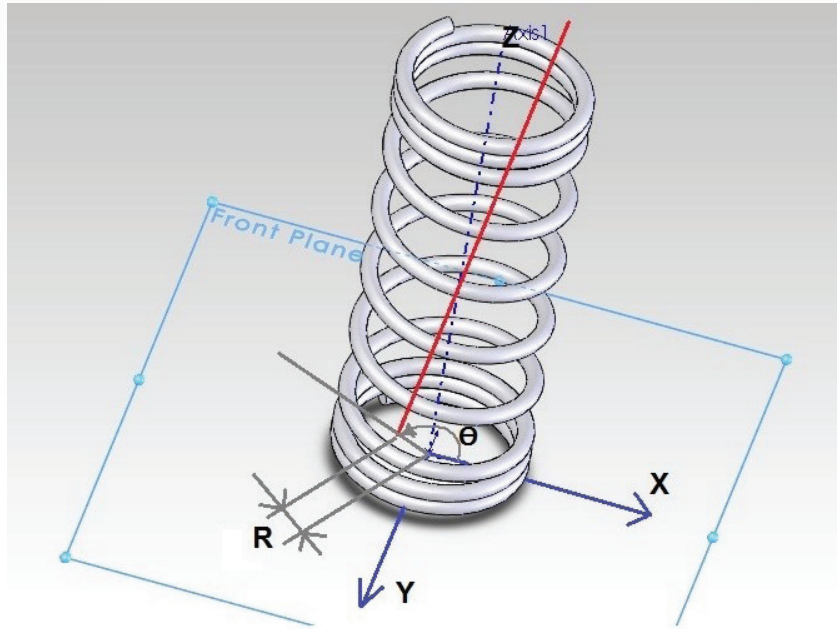
Allows the safe testing of springs that are flimsy or tend to buckle.





## OPTIONS

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