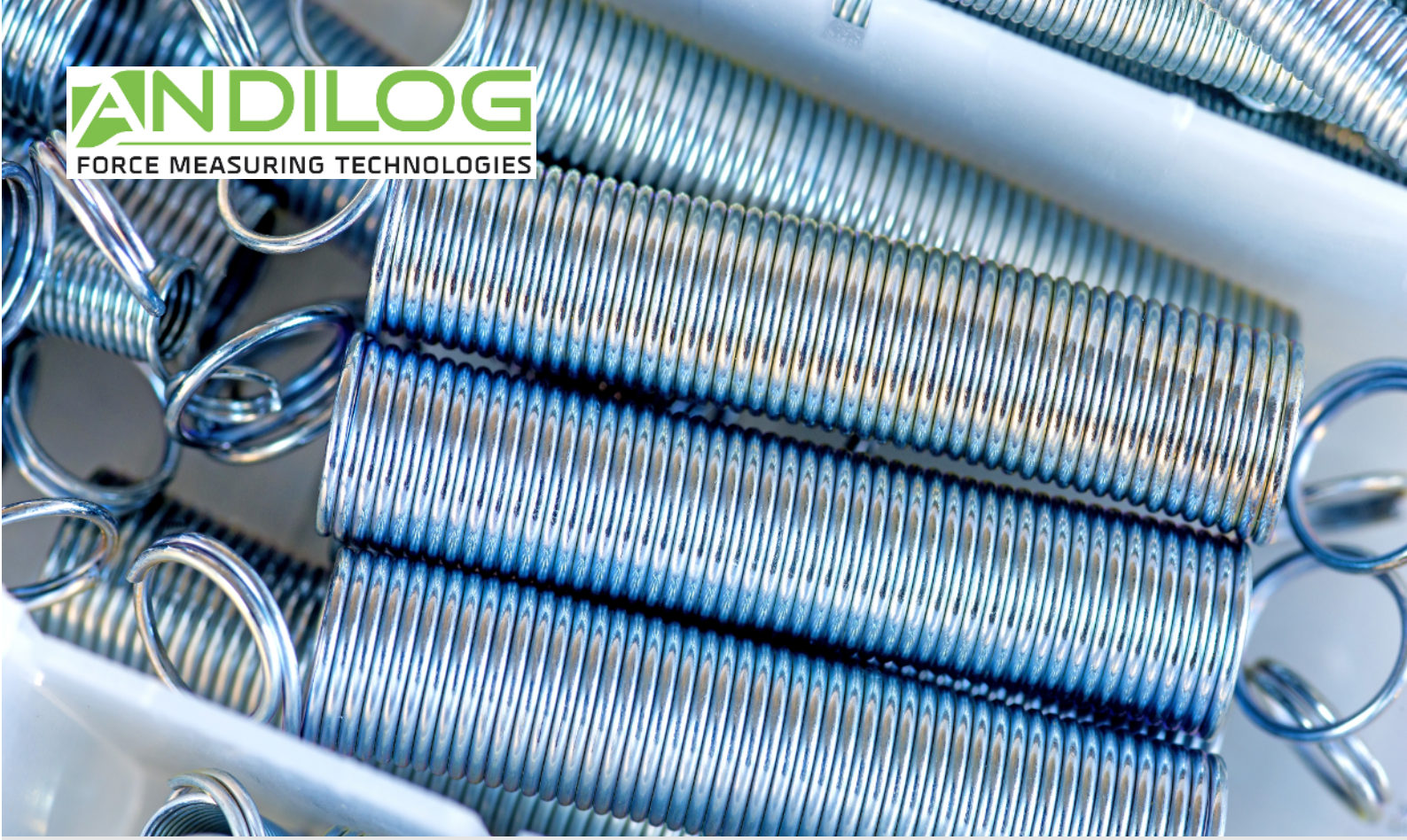


ANDILOG
FORCE MEASURING TECHNOLOGIES

SPRINGTEST RANGE

Manual and motorized test stands for spring verification

SPRINGTEST series, the range of instruments for springs

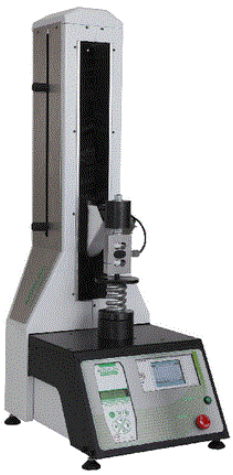
Tension, compression and torsion springs

To ensure the proper integration of springs in your end products and to ensure a seamless quality process, it is necessary to periodically control the spring rate. These controls can be done during the design or during productions checks thanks to manual or motorized test stands, which enable you to measure the spring rate at one or more points. Force gauges and testing machines enable you to simply measure the applied force on a spring at a predefined height.

To perform these tests, Andilog has developed the SPRINGTEST product range which is available in different test stands.

Verification of tension and compression springs

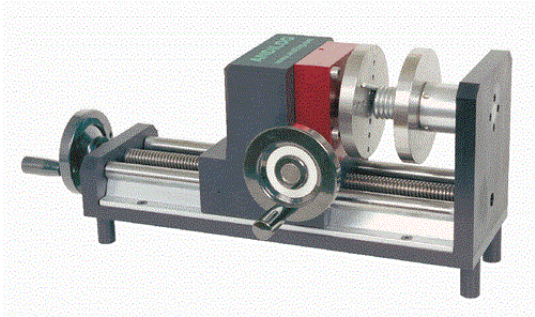
Springtest 1 and T1 - Simple, manual measurement of tension and compression springs



Springtest 2 - Measure small springs

Springtest 3 - Automated measurement of tension and compression springs

Verification of torsion springs



Springtwist - Manual measurement of the torque and angle

Drivetwist - Motorized measurement of the torque and angle

Simple manual spring check: Springtest I and TI

The Springtest I and TI are **precise, simple and economical system to control compression springs** of small capacity. They include a very accurate force gauge (0,1% FS), a manual test stand, a digital ruler and a special compression plate for springs.

The measuring head (internal load cell with strain gauges) indicates the force applied, the ruler displays the deflection or the height under load. The bottom self levelling plate guarantees the parallelism of the plates.

Springtest I - Measure small spring capacities with crank

The system Springtest I is very easy to use and it is designed to perform your measurements quickly. It can be used for delivery checks, in the quality insurance, the production line or in the laboratory. The quality and repeatability of the results are ensured through a specific design made by Andilog Technologies:

- The manual test stand has a minimum deformation when under load thanks to a **double steel guidance and a worm screw with minimal clearance**
- The worm screw permits a **precise positioning** with a travel distance of 2,54 mm (0,1 inch) for each crank turn
- The digital ruler offers a **resolution of 0,01 mm** to ensure a repeatable and precise spring compression.

Springtest TI - Measure springs up to 2 kN/450 lbs with lever

The Springtest TI series is a very simple and economical system for checking compression springs in one point. The manual displacement is done through a lever which permits to **perform quick tests from 10 N to 2.000 N (2,25 to 450 lbs).**

The vertical displacement for each lever rotation is of 80 mm (3,15 inch). The manual test stand is portable, robust and compact with a total height of 476 mm (18,74 inches).

Centor Easy digital force gauge

The force gauge Centor Easy are designed to meet the production needs of its users. They offer indispensable feature for quality controls, such as: **ease of reading with its large backlit graphical display, internal memory of the last 100 values, RS232 output and ability to set thresholds with visual and sound alarms.** The M5 thread at the back of the device enables the mounting on the Springtests.

Its highly efficient measurement chain enables it to use a sampling rate of 1,000 Hertz with a resolution of 1/10.000 FS and a total error of less than 0.1% FS.

How to perform measurements on springs with the manual test stands Springtest I and TI?

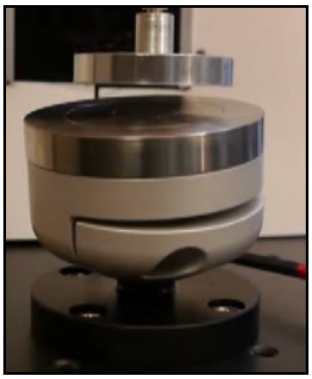
Self-leveling plate and accessories

This self-leveling compression platen adjusts the parallelism between the plate and the sample holder during measurements in compression. It ensures the good positioning of the spring.

With an external diameter of 76 mm (3 inch), the self-levelling platen can withstand loads up to 2,000 N / 450 lbs.

Hooks can be delivered as an option to perform tests on tension springs.

How to measure with the Springtest I & TI?

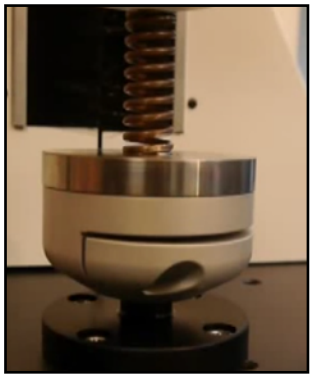


For the first measurement and regularly, it is necessary to ensure the parallelism between the compression platen and the self-leveling plate.

Unlock the screws of the self-leveling plate and put the two platens in contact.

In order to reach the optimal accuracy of the Springtests and to compensate the mechanical deformation of the system, we recommend applying the maximal force of your force gauge on the test stand.

Once you have done this, tighten the screws of the leveling plate and tare the digital ruler.



This way you can test all your springs with great accuracy and lower deformation.

Place your springs on the Springtest, tare the force gauge and go down with the measuring head until you´ve reached the expected compression height.

Record the actual force indicated on the Centor Easy or transfer it into a computer.

High accuracy check: Springtest 2

Springtest 2 - Measurement of small spring capacities with crank

The Springtest 2 has been especially developed for the precise measurement of compression springs. This manual test stand with force gauge or external load cell and digital ruler is well suited for the measurement of springs with small dimensions and force ranges.

The spring tester is equipped with the latest technologies for the data acquisition, data processing and force measurement thanks to the Centor Touch Dual. This measurement system permits the **acquisition of the force and displacement with a high sampling frequency in real time**. Hence, your measurements are more repeatable and more exploitable.

The Springtest 2 offers you unique functions on the market: touch, color display with visualization of the curve, included data acquisition software, interchangeable load cells etc.

This test stand is equipped with a precise displacement sensor which gives a **measurement of the flexion or height measured under load with a resolution of 5 µm.**

The Springtest 2 is equipped with a set of **adjustable limit stops and with strain gauges of high accuracy** (0,1% FS). This makes sure that the maximal capacity of the load cell is not exceeded. These stops are adjustable manually.

Caligraph – Visualize your tests in real time

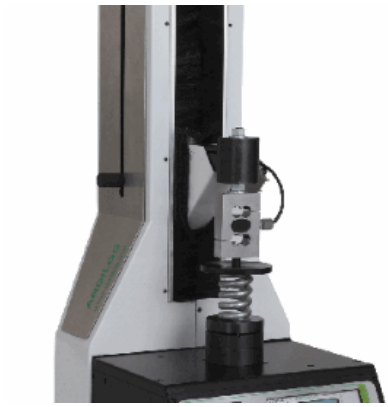
With the acquisition and analysis software Caligraph, you can watch the evolution of the curve of force and torque in real time, save your data, calculate automatically the results and edit customizable test reports.

The measurement starts with a simple click and you follow live with a speed rate of 1.000 Hz (depending on the equipment) the essential information with predefined calculations of your choice.

Caligraph is the indispensable complementary tool to utilize the full potential of Springtest 2 for your spring measurements.

Automated spring verification: Springtest 3

Automated measurement of the spring height and force



The Springtest 3 is based on the Stentor II testing machine. It is designed to perform force testing on coil compression and tensile springs from 0 to 2,000 N (450 lbs), the Springtest 3 is a versatile and smart system designed specifically for testing in quality control, manufacturing, and R&D areas. With it, you can perform:

- Stiffness measurement in between two points
- Force measurement at 1 or 2 displacement values
- Displacement measurement at 1 or 2 force values
- Load curve of springs

A clear display with quick results

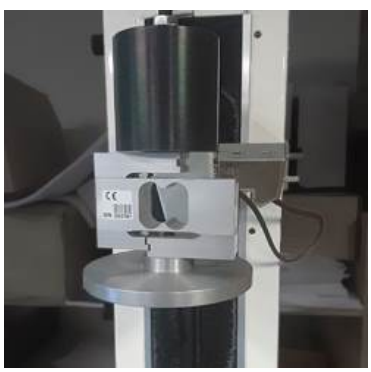
The front panel includes the latest Touch series technologies and provides users with a fast, one-step, colors coded results display. **Data is collected continuously offering real-time dual measurements and graphs, or 3 measurements** (example: force, displacement and stiffness or the force at a displacement value and two other measurements).

An easy to use customizable measurement screen allows you to display required test results.

Users configure measurements through simple and complete touch screens. For instance, the user specifies the two values (spring height) in between which the force measurements have to be done.

The Springtest 3 model automatically calculates the spring rate according to the measured force at the two defined values.

Interchangeable, SPIP remote load cells



The Springtest 2 and 3 are supplied with a highly accurate force load cell designed to provide repeatable results. The force accuracy is 0.1% of the load cell's capacity with a data acquisition rate of 1,000 Hz.

The force load cells are equipped with Plug and Play SPIP technology, which stores all their calibration parameters. **You can swap out a load cell in accordance: the load cell is automatically recognized by the testing machines Springtest 2 & 3.**

Hence it is possible to have sensors of different capacities with just one machine or to have a spare load cell to avoid a too long downtime during the calibration time.

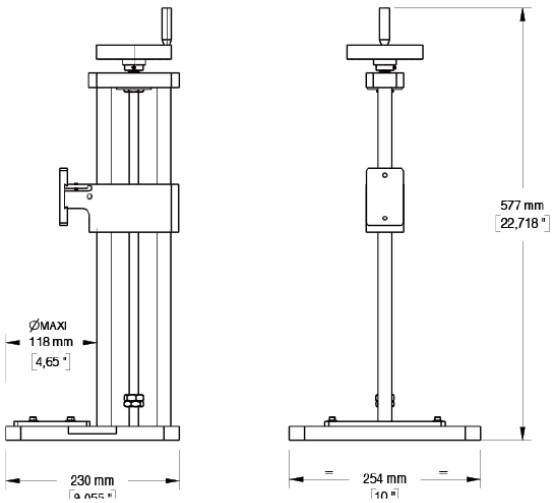
Specifications of the SPRINGTEST range

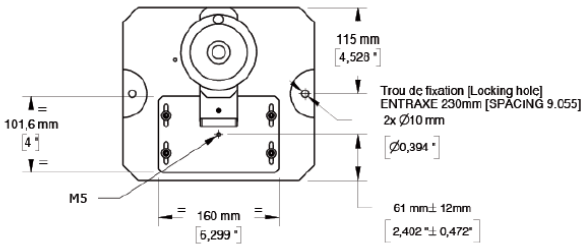
Range of measurement and accuracy

Specifications	Springtest 1	Springtest T1	Springtest 2	Springtest 3
Capacity	10-1000 N 2-225 lbs	10-2000 N 2-450 lbs	10-1000 N 2-225 lbs	10 - 2000 N 2-450 lbs
accuracy of the force load cell	0,1 % FS	0,1 % FS	0,1 % FS	0,1 % FS
Protection against overloads	150 % FS	150 % FS	150 % FS	150 % FS
Force units	N, Lb, Kg, g, Oz			
Internal memory	100 results		2,000 results	
Number of lines	2		Curve + 2 lines OR 3 lines	
Sampling rate	1000 Hz			
Curve display	No	No	Yes	Yes
Displacement resolution	0,01 mm 0,00039 in	0,01 mm 0,00039 in	5 µm	0,01 mm 0,00039 in
Vertical displacement for each crank turn	2,54 mm 0,1 inch	80 mm 3,15 inch	2,54 mm 0,1 inch	Adjustable
Adjustable speed in mm/min	No	No	No	Yes
Mechanical stops	Yes	Yes	Yes	Yes
Software stops	No	No	No	Yes
Cycles	Manuals	Manuals	Manuals	Automated
Connection to a computer	RS232, USB	RS232, USB	RS232, USB	RS232, USB
Max. stroke	300 mm 12 inch	175 mm 7 inch	300 mm 12 inch	250 mm-350 mm 10-14 inch
Compensation of the deformation of the test stand	Manually	Manually	Software	Software

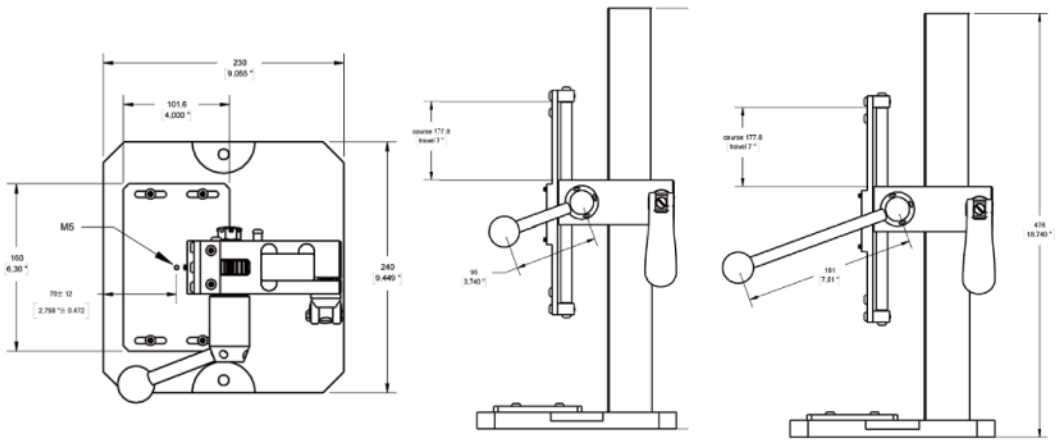
Dimensions

Springtest 1 and 2

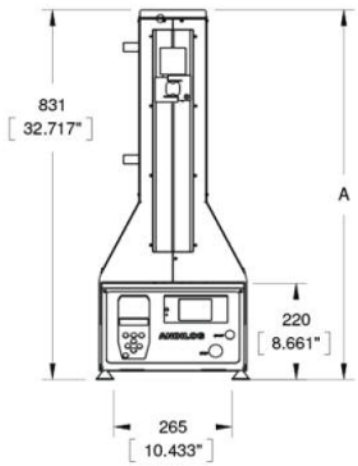


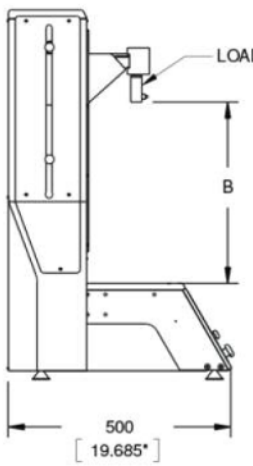


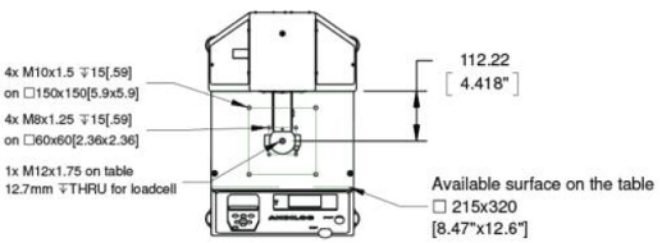
Springtest T1



Springtest 3

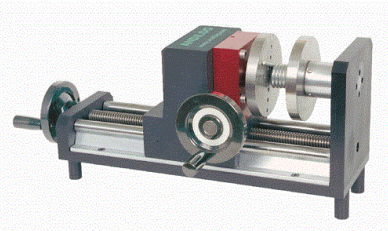






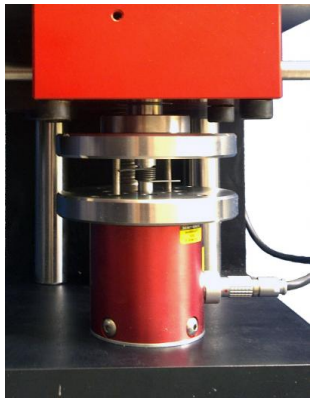
Verification of torsion springs: Springtwist and Drivetwist

Manual measurement of the torque and angle: Springtwist



Designed to measure torsion springs, the SPRINGTWIST manual torque bench is the best solution to complete your tests. It displays torque and angle values and plots the curve on a single screen.

The Springtwist is supplied ready to measure with all the accessories needed for your tests: support for the spring, drive pins and plates for different sizes of springs.



This test bench is equipped with a high quality strain gauges torque sensor with a capacity up to 60 Nm and an accuracy of 0.5% of the full scale. Torque sensors lower capacities can be connected to the Springtwist for measurements on springs with small loads. These sensors are plug and play and do not require configuration of the device.

The extremely rigid frame is designed to ensure a perfect alignment between the two plates of twist to avoid measurement error. The positioning of the sensor is made using a ball screw to fit the width of the spring. The rotation is operated by a crank. Thanks to the important gear ratio between the crank and the plate, it is easy to perform repeatable measurements at an accurate angle.

Drivetwist - Eliminate the influence of the operator on the measurement

To perform a precise and repetitive measurement on your springs, it is necessary to use an automated torsion bench. The automated torque test bench DriveTwist for all static torque measurements is specially designed to determine the torsion properties of components subjected to twist loading in service. Thanks to its motorized command, set the speed of your test protocol and perform your torsion test without the influence of the operator.

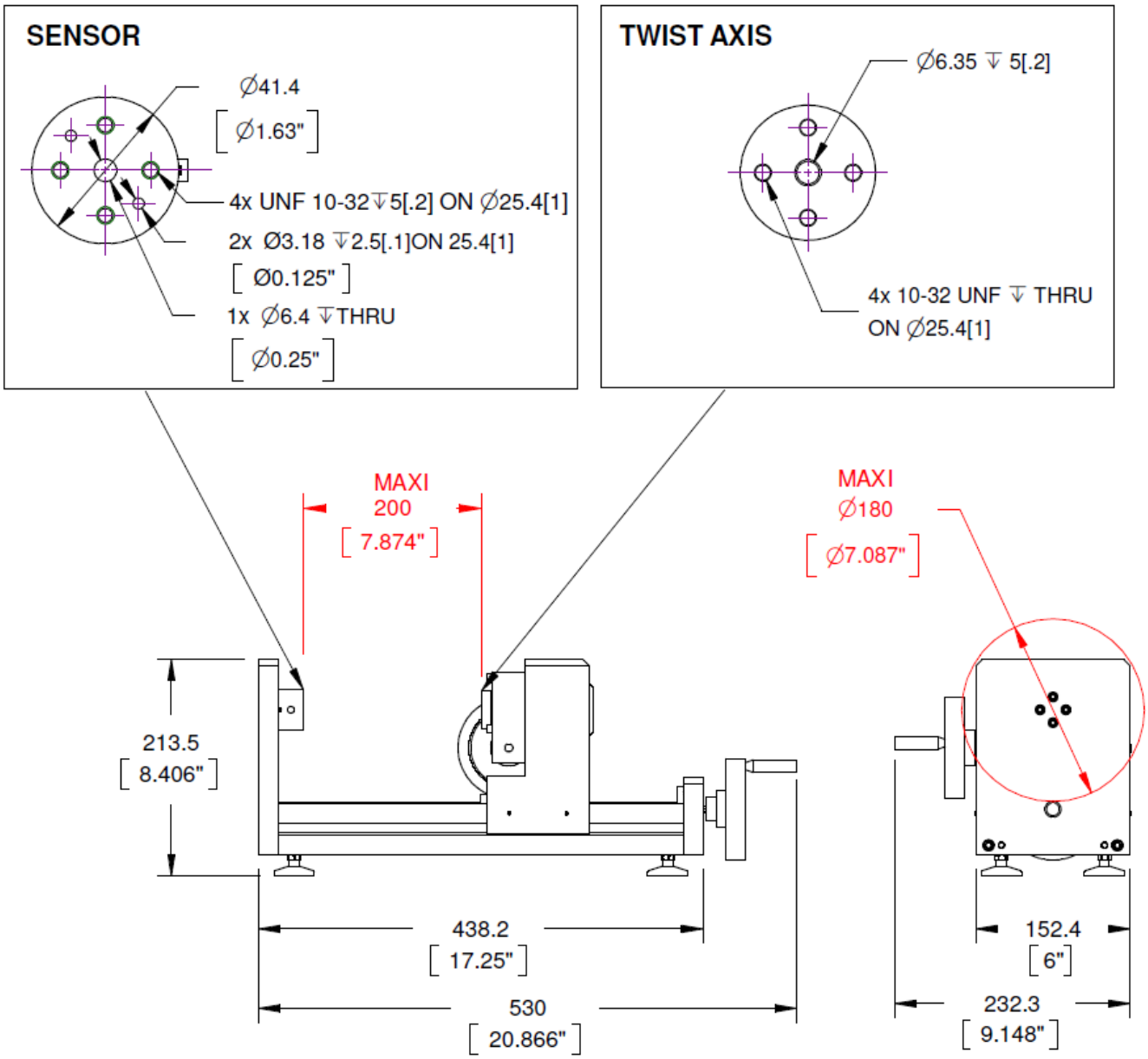
The motor command and measurement acquisition is done through the DriveTouch controller. Thanks to its ability to read simultaneously data from two sensors at a sampling rate of 1.000 Hz, the DriveTouch measures data from the static torque transducer and from the rotary encoder.

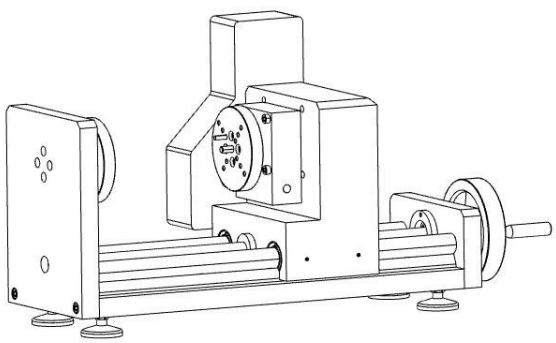
The controller offers a manual and computer-controlled mode. The manual mode from the Drivetouch enables to perform positional adjustments before starting the test. With the software Califort, you can program entire test sequences.

The DriveTwist is the easiest and most complete system for torsion tests in the workshop or in the laboratory.

Dimensions of the torsion benches

Springtwist and Drivetwist





Program and Drive your equipment with Califort software

Califort – Advanced material testing software

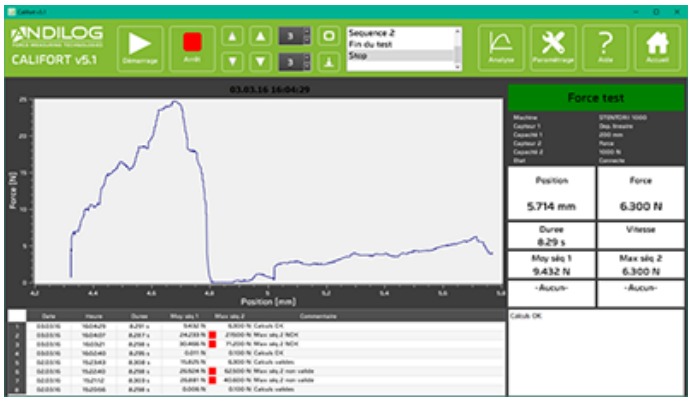
The software Califort enables you to perform complex and precise force and torque measurements in all simplicity.

Califort offers you several benefits:

• **Intuitive** and preset for the users

• **Performing and handy** to customize your measurements

• **Customizable** in the editing of your reports and the result analysis



The new designed interface of Califort has been fully optimized to offer a better experience with a clear and well organized interface.

It facilitates reading and usability of the software for faster and efficient daily use.Califort remains available to use with Microsoft Windows tablets and touch screens thanks to its integrated virtual keyboard and suitable interface.

Infinite number of industrial applications

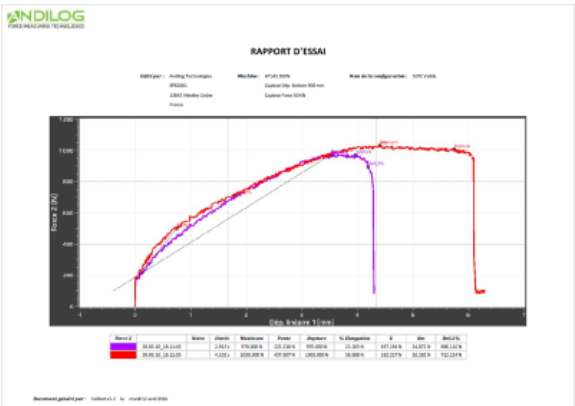
Califort is able to set the most demanding sequenced test protocols and comes with an extensive list of pre-defined calculations, which can be performed automatically during your tensile, compression or torsion test maximum, minimum, average, or break as well as the Young's modulus, the modulus of elasticity etc.

Each sequence can be customized to run up, down, clockwise at different speeds and with a stop condition (i.e. breaking point, force at position, time, travel position etc.). It also offers a cycling feature for repetitive actions.

Customize your results

Califort has an advanced editor which enables the data integration into a report: curve, result chart, test configuration and customization of headers and footers on each report for a total personalization.

Califort is the turnkey software to support you in the programming of your tests and insures the optimal traceability of your results.



Driving software for springtest 3 and DriveTwist

ANDILOG
FORCE MEASURING TECHNOLOGIES

Testing systems delivered with:

Springtest 1, T1 and 2	Springtest 3	Springtwist/DriveTwist
Manual test stand BAT1000 (Springtest 1) TEX555 (Springtest T1)	Testing machine Stentor II	Torsion bench DriveTwist or Twist
Digital ruller	Load cell up to 2,000 N / 450 lbs	Torque sensor 0,35-24 Nm (up to 60 Nm for the Springtwist)
Force gauge Centor Easy with internal or external accuracy load cell (Springtest 1 and T1)	Self-leveling plate Ø 76mm	2 pierced platens for the insertion of guiding accessories
Centor Touch DUAL with its table display and external load cell SPIP S2 (Springtest 2)	Compresion platen Ø 100 mm	Driving software Califort (Drivetwist)
Compression platen Ø 50mm	Certificate of calibration affiliated with COFRAC/ NIST	Communication cables (2 USB ports necessary)
Self-leveling plate Ø 76mm	User manual	Supply cables (110V and 220V)
Certificate of calibration affiliated with COFRAC/ NIST	Supply cables (110V and 220V)	Calibration cCertificate of calibration affiliated with
User manual		User manual

SPRINGTEST Range

Manual and motorized test stands for spring verifications

AB certification

ISO 9001:2015 Certified

FRANCE

ANDILOG

BP62001

13845 VITROLLES CEDEX

info@andilog.com

www.andilog.com

Tél : +33 442 348 340

USA

ANDILOG / COM-TEN

6405 49th St North

Pinellas Park, FL, 33781

sales@com-ten.com

www.andilog.com

Tél : +1 72705201200