



Titan⁵

UNIVERSAL STRENGTHTESTER

For Tension and Compression Testing now with capacity to accommodate tests up to **5000 Newtons (5kN)**.

MODEL NUMBER: 1410

STOCK CODE: 904-506

TESTWISE™ SOFTWARE

STOCK CODE: 794-896



KEY BENEFITS

INCREASED STRENGTH - 5kN

Increased strength capacity - up to 5000N tension and compression.

FIVE NEW TOOLS

The extensive range of tool-free grips has been increased by five new tools.

AUTOMATIC PARAMETERS SETUP

Preloaded to eliminate human error - total conformance with the standard.

AUTOMATIC JAW SEPARATION

No steel ruler is required.

QUICK CHANGE LOAD CELLS

The potential to increase efficiencies and laboratory through put.

QUICK CHANGE JAW FACE

Simple and Tool free.

'SMART' BUTTON

Sample loading and the test start can be actioned directly at the instrument.

SOFT CLOSE JAWS

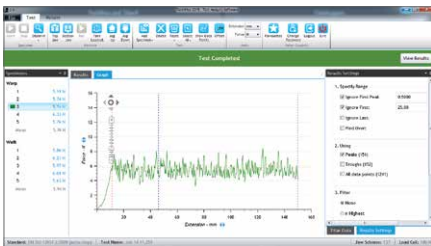
Safety feature reduces the chance of injury and creates safer working.

PRESSURE SENSOR

Prevents impact damage to the user, the tool and the Load Cell.

CLEAN WORKING ENVIRONMENT

Clean, efficient work area and a small footprint to save lab bench space.



KEY BENEFITS - EXPANDED

INCREASED STRENGTH - 5kN

The strength capacity increased - to 5000N.

- Products requiring a higher capacity instrument can now be tested.
- Labs can increase the number and scope of tests offered.

AUTOMATIC TEST PARAMETERS SETUP

TestWise Software automatically sets up the test parameters of the selected Standard.

- Time to start the test is reduced. Increased efficiency - production through-put and time savings.
- Preloaded parameters eliminates human error.
- Greater accuracy, reliability and reliability as the test has total conformance with the standard.

AUTOMATIC JAW SEPARATION

The jaw separation is automatic, so unlike some of the competitor's instruments, no steel ruler is required to measure the separation space.

- The distance is calibrated and is repeatable and precise as human error is eliminated from this operation.

QUICK CHANGE JAW FACE

Changing the jaw faces is tool free and is a very simple and efficient process.

- A very useful time saving benefit of our Titan.



PRESSURE SENSOR ON BOTTOM JAW

A pressure sensor on the bottom grip connection will automatically stop the instrument in the event of a collision between the top and bottom grips.

- This safety feature will prevent impact damage to the operator, the tool and the Load Cell.

FIVE NEW TOOLS

The extensive range of tool-free specimen grips has been increased by five new tools, including tools and grips to test Elastane, Rivets, Studs, Press studs, Velcro and leather products.

- Labs can perform a wider range of tests, comply with more Standards on a wider range of product types.

QUICK CHANGE LOAD CELLS

Quick change with auto-recognition.

- Makes the process easier and saves time and has the potential to increase efficiencies and laboratory through put.



'SMART' BUTTON

Sample loading and the test start can be actioned directly at the instrument using this Smart button eliminating the need to constantly return to a PC or Laptop.

- The testing process is simpler, extremely productive and user friendly.

SOFT CLOSE JAWS

When loading a sample, the jaws will initially apply very light pressure, sufficient to grip the sample but not to cause damage fingers.

- This safety feature significantly reduces the chance of injury and creates safer working.

A CLEAN WORKING ENVIRONMENT

All the pneumatics, the electronics, the foot switch cabling, USB port and the power supply are neatly integrated into the instrument.

- No bolt-ons, extras or messy cabling to create a trip hazard or hidden additional costs.
- Clean, efficient work area and a small footprint to save valuable laboratory bench space.

TITAN⁵

AT A GLANCE

- Areas of Application**
- Yarns
 - Woven and knitted fabrics
 - Coated fabrics
 - Nonwovens
 - Leather
 - Elastane
 - Footwear
 - Rivets
 - Studs
 - Velcro
 - Press studs
 - Poppers
 - Leather

- Operating Modes**
- Tension
 - Compression
 - Max Capacity: 5000 N

Precision cartridge load cell for safe handling

Interchangeable manual or pneumatic grips

Automatic setting of jaw separation based on selected Standard

The flat base enables the sample to be placed easily

'SMART' button
This aids the loading of the sample and is used to start the test - removing the need to constantly return the PC

Safety feature: 'Soft Close' Jaws,

Pneumatic connection To compressor or Factory airline, USB connection to laptop or PC and the Foot switch control

CLEAN WORK AREA

- Integrated Power Supply
- No additional 'bolt-on's'
- No messy wiring or cables
- Everything is contained within the robust case.

TITAN⁵ TOOLING

The extensive range of tooling for the Titan Universal Strength Tester has been further expanded for the Titan⁵. The range can be seen over the next three pages

T4 Button Holder (used with T27)



- Testing **buttons** to destruction
- Security of attachment of **buttons**
- Integrated debris shield
- Typical standards: **BS 4162, M&S P122 and Next TM37**

T12 Attachments Kit (used with T27)



- Testing **security of attachments to garments**
- Range of grips and pneumatic lower clamp
- Standards: **EN 71-1, M&S P115, M&S P124 and Next TM42, TM45 and TM46**

T5 Pneumatic Yarn Grips (pair)



- Testing strength of **yarn**
- Maximum force: 120 N
- Aluminium jaw faces (plain)
- Optional ABS jaw faces (corrugated)
- Standards: **ASTM D2256, EN ISO 2062**

OctoGrip



- Complementary gripping system for use with T12
- OctoGrip has 8 claws for gripping small attachments

T8 Needle Clamps - Apparel Version (used with T27)



- For **apparel** fabrics
- Seam slippage test (without sewing)
- Standards: **EN ISO 13936-3**

T13 Pile Loop Extraction Kit (used with T27)



- For extracting loops from **Terry Towels**
- Standards: **EN 15598**

T9 Needle Clamps - Upholstery Version (used with T27)



- For **upholstery** fabrics
- Seam slippage test (without sewing)
- Standards: **EN ISO 13936-3, IKEA IOS-PRG-0023**

T14 Zip Testing Kit (used with T27)



- Testing strength of **zip elements**
- Wide range of grips included
- Standards: **BS 3084, ASTM D2061, EN16732**

TITAN⁵ TOOLING (continued)

T15 Pneumatic Yarn Grips (pair)



STOCK CODE: 794-883



- Testing strength of **yarn, cords and threads**
- Maximum diameter: 6mm Ø
- Maximum force: 1000 N
- Standards: **ASTM D2256, EN ISO 2062**

T18 Loop Bars (pair)



STOCK CODE: 794-889



- **Stretch and recovery tests**
- Specimens up to 125mm wide
- 4mm, 6.5mm, 8mm, 10mm and 13mm Ø bars
- Standards: **BS 4952 (withdrawn), BHS 15J, EN 14704-1 (Method B), ASTM D4964, Adidas 4.27**

T19 Checkweight Set



STOCK CODE: 794-891



- Recommended for regular user checks of the accuracy of the load cells
- Not to be used for calibration

T20A Clamp for Ball Burst and Puncture Tests



STOCK CODE: 794-894



- Ball burst test for **fabrics**. Operates in compression mode
- Alternative clamps and probes available on request
- Clamp only, order Ball Burst and Puncture probes separately
- Standards: **ASTM D751, D3787, D6797, and WSP 110.5**

T20A Ball Probe



STOCK CODE: 794-895



- Used with T20A Clamp.
- Operates in compression mode
- Ball Probe only, order T20A-Clamp separately
- Standards: **ASTM D751, D3787, D6797, and WSP 110.5**

T20B - Screwdriver Puncture Attachment



STOCK CODE: 794-839



- Used with T20A Clamp
- Operates in compression mode
- Screwdriver Puncture Probe only, order T20A-Clamp separately
- Standard: **ASTM D751**

T21 C-Clamps (pair)



STOCK CODE: 794-838



- **Stretch and recovery tests**
- Specimens up to 125mm wide
- 8mm and 10mm Ø bars
- Standards: **EN14704-1 (Method B) and Adidas 4.27**

T22 Hank Bollards / Skin Spools



STOCK CODE: 794-602



- To test the strength of **Yarn in Hanks & Skeins**
- Used for **CSP**
- Recommend using with 5000N load cell
- Standards: **ISO 6939 and ASTM D1578**

TITAN⁵ TOOLING (continued)

T23A Manual Fabric Grips (5kN)



- Manually operated grips
- Used for test Strength, Seam, Tear tests
- Full width jaw faces 25 mm²
- Maximum force: 5000 N

T26 Bra Wire Penetration Tool (used with T27)



- To test puncture resistance of Bra Wire casing
- Standards: **M&S P11A**, **Next TM36**, **Pacific Brands PB-002** and **H&M DS-12**

T24 Stud and Button Holder (used with T27)



- Suitable for testing **buttons** and **tack-buttons (studs)**
- Standards: **BS 7907** and forthcoming **EN standard**

Coefficient of Friction



- To test products such as cork flooring, packaging and other sheet materials
- Standards: **ASTM D1894**, **DIN 53375**, **ISO 9295** and **TAPPI T549**

T25 Manual Yarn Grip (pair)



- Testing strength of **yarn**
- Maximum force: 1000 N

T27 Universal Pneumatic Fabric Grips (pair)



- Strength, seam slippage and tear tests
- Maximum force: 5000 N

Baumann / Slit Tear Clamps



- For the testing of leather items - Handbags, shoes, etc
- For use with **ISO 3377-2** - Leather - Determination of tear load - Part 2: Double edge tear
- Also suitable for **IUP 8** and **M&S P35**

TITAN⁵

APPLICATIONS

The applications for the Titan⁵ are numerous. A selection some of the diverse range of tests, with the relevant tooling and grips, is shown below.

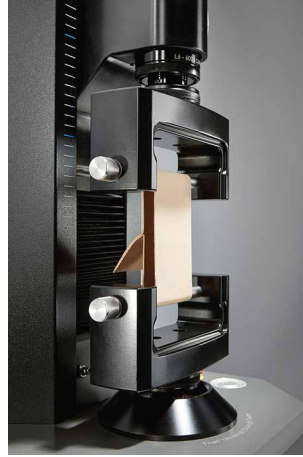
Fabric Strength Test (T27)



Tear Strength Test (T27)



Stretch & Recovery Test (T18)



Seam Slippage Test (T18)



Baumann Tear Strength



Hank (Lea) Strength Test



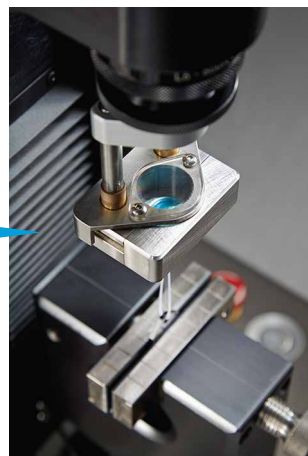
Compression Test (T20A)



Compression Test (T20B)



Button Strength (T4)



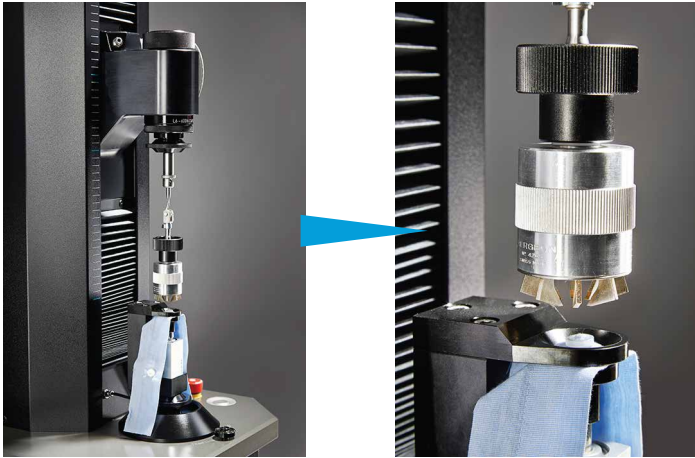
Security of Attachments Test (T12)



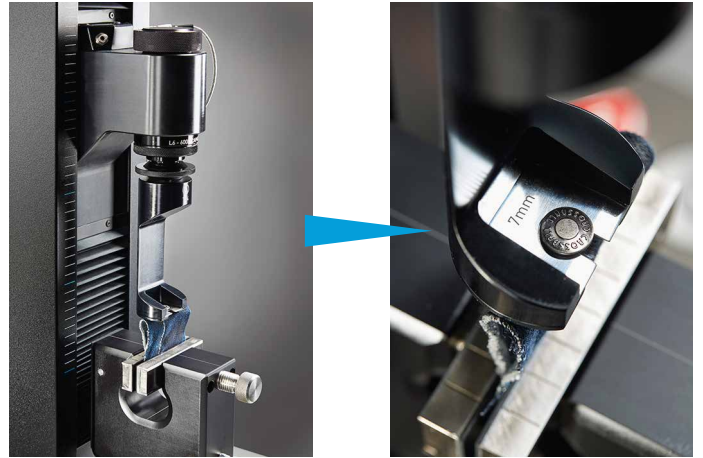
TITAN⁵

APPLICATIONS (continued)

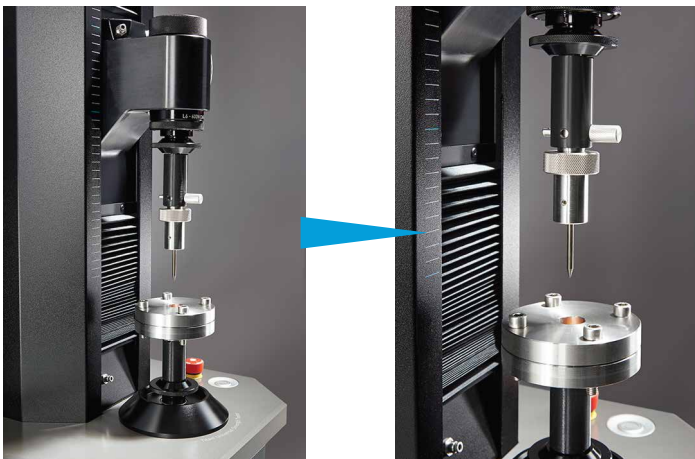
OctoGrip



Stud Strength



Puncture Test



Line Contact



Coefficient of Friction



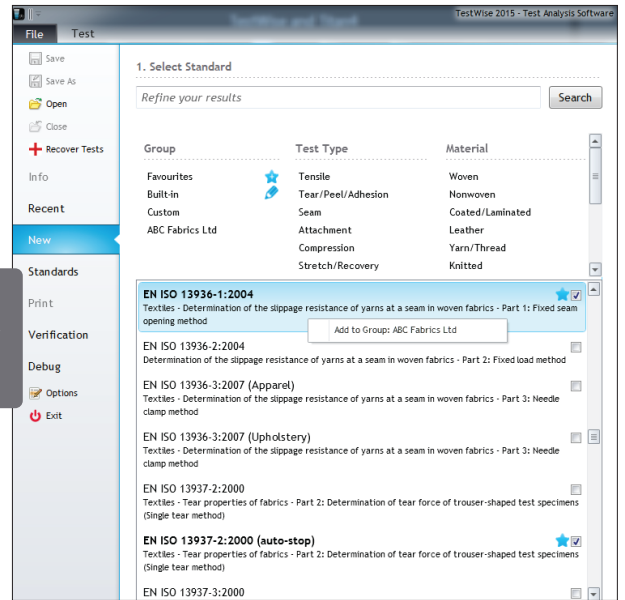
James Heal can also consider specific testing requirement with special grips and modified software upon request.

TESTWISE ANALYSIS SOFTWARE



The Titan⁵ is further enhanced and supported by the easy to use and intuitive test analysis software.

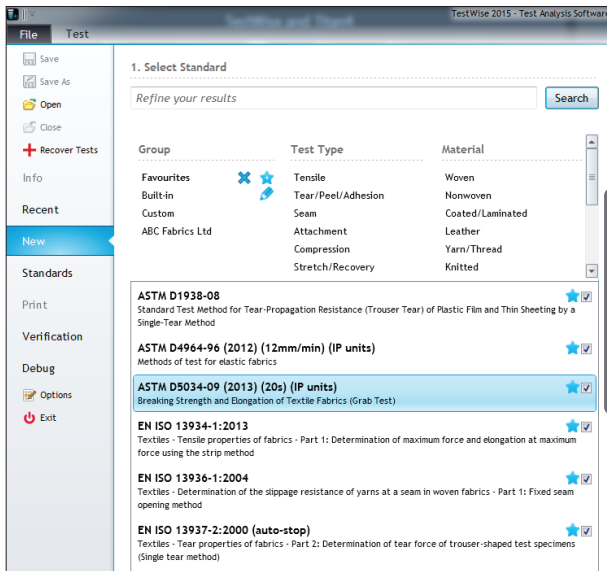
PRELOADED STANDARDS LIBRARY
TestWise incorporates an ever expanding library of pre-loaded standard and test methods.



FILTERS & 'FAVOURITES'

The Standard can be easily located through a 'Filter' option.

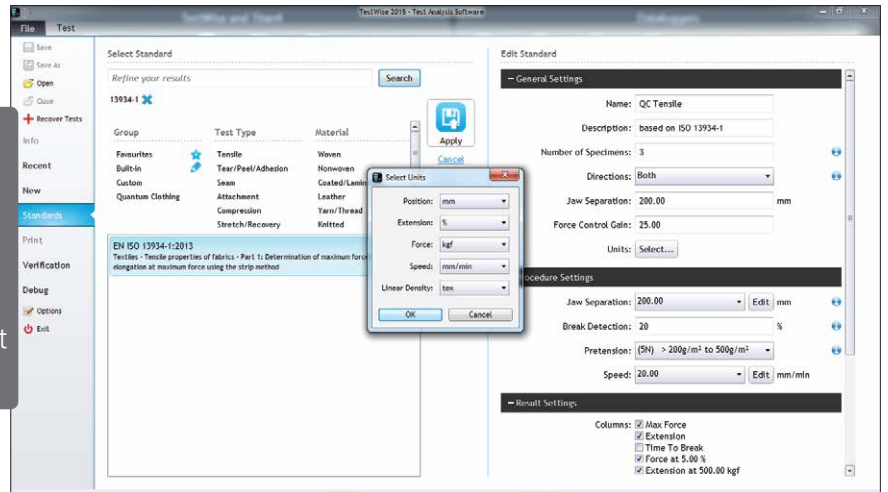
Standards which are used regularly can be saved within 'Favourites' for instant access.



CUSTOMISE STANDARDS

The Standards Editor enables users to create **user-defined Standards** for their own specific needs and/or their customer requirements.

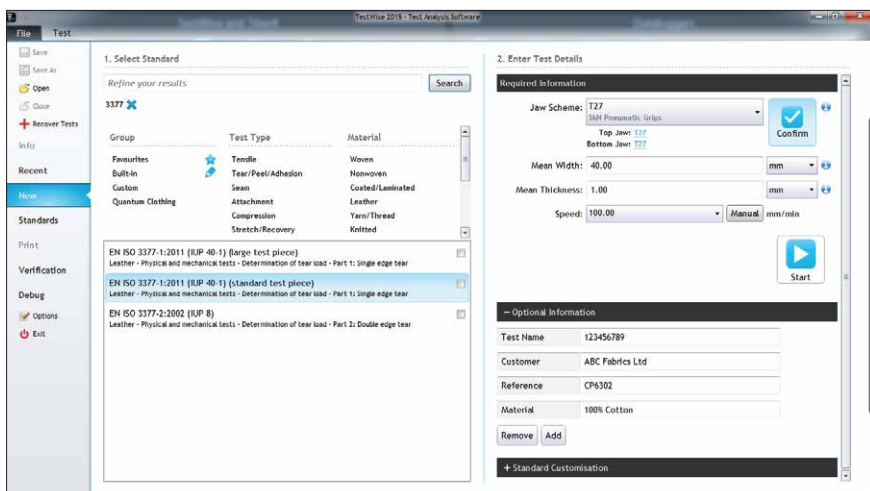
Once a new standard has been created it is ready for use in the Standards Library.



AUTOMATIC SET-UP

TestWise transfers the test parameters, specified in the selected Standard, to the instrument for automatic set-up.

This reduces the time to start the test. Increased production efficiency. The training time is also reduced.



TESTWISE ANALYSIS SOFTWARE (continued)

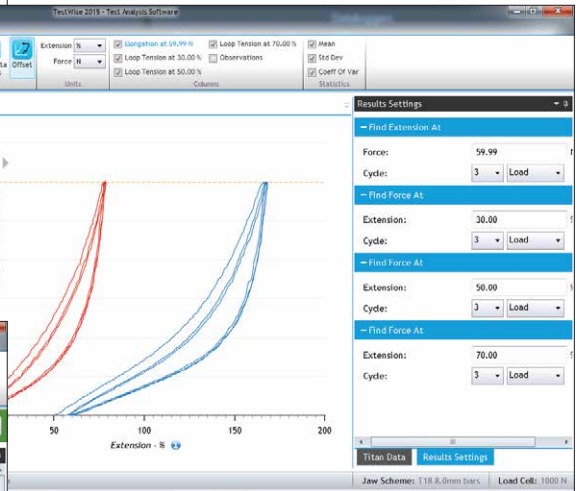
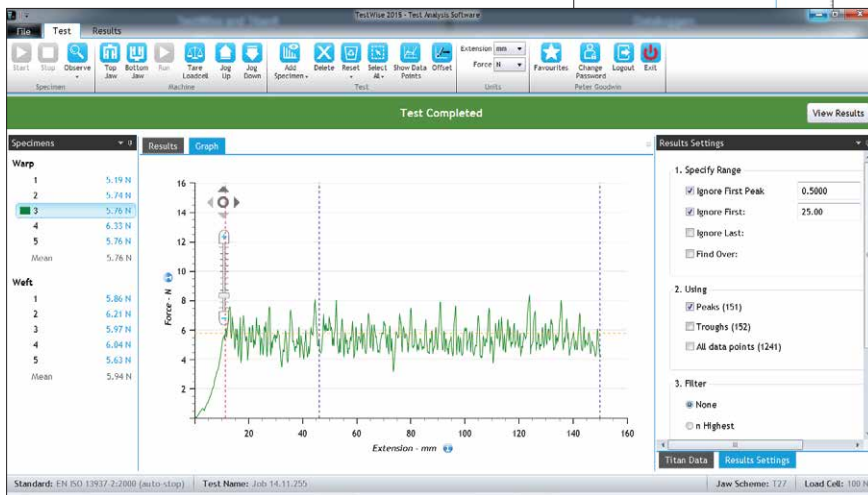
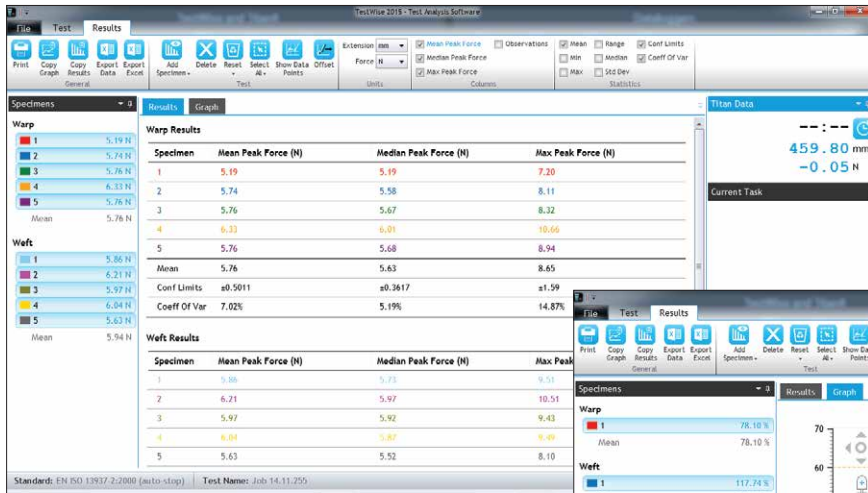


RESULTS

Customisable statistical reporting - the user gets just what they need.

Specimen test results including current mean value allow immediate visibility of trends.

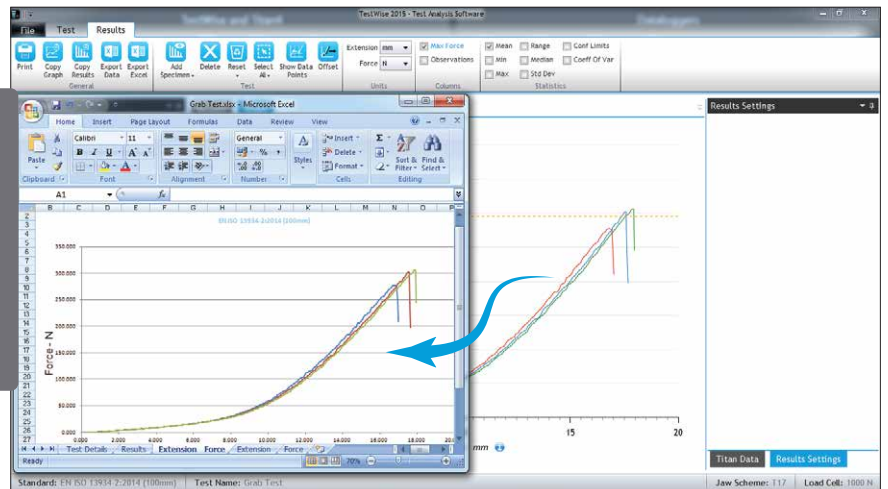
Real-time presentation of Time, Extension and Force values allows monitoring of results during testing.



EXPORT TO EXCEL - NEW FEATURE

This new feature offers the full export of data to Excel with an automatic graph creation facility.

This function enables the user to create their own custom analysis and statistics.



AUTOSAVE - NEW FEATURE

The TestWise software has an autosave function active throughout the testing so in the event of a power failure test data is not lost and can be recovered.

TITAN⁵ STANDARDS LIBRARY

Titan⁵ and TestWise have been developed based on a wide variety of national and international Standards and retailer test methods. The list below is a summary of the pre-loaded Standards and is not the definitive list.

SECURITY OF ATTACHMENTS

ASTM D2061	ISO 8124
ASTM D4846	JTA 8T 2012
ASTM D7142	M&S P115 series
ASTM F963	M&S P122
BS 3084	M&S P124
BS 4162	Next TM37
BS 7907	Next TM42
BS 8510	Next TM45
EN 15598	Next TM46
EN 16732	UNE 40902
EN 71-1	
GB 6675	

COMPRESSION AND BALL BURST

ASTM D3787	ISO 3303
ASTM D4830	ISO 9073-5
ASTM D5748	WSP 110.5
ASTM D6797	
ASTM D751	
EN 12332-1	
EN 14704-2	
EN 388	
EN 71-1	

FABRIC STRENGTH

ASTM D5034	M&S P11
ASTM D5035	M&S P11A
EN ISO 13934-1	M&S P11B
EN ISO 13934-2	M&S P11C
EN ISO 1421	M&S P43
GB/T 3923.1	Next TM27
GB/T 3923.2	Next TM36
ISO 3376 (IUP 6)	
ISO 5081	
ISO 5082	
ISO 9073-3	
JIS L1096	

PEEL BOND / DELAMINATION

ASTM D2724	
ASTM D5170	
DIN 54310	
EN ISO 11644 (IUF 470)	
EN ISO 2411	
JIS L1085	
M&S P13	
M&S P13A	

SEAM STRENGTH & SEAM SLIPPAGE

ASTM D1683	M&S P12
ASTM D4034	M&S P12A
ASTM D434	M&S P12B
ASTM D5822	M&S P12C
GB/T 2660-2666	Next TM16 series
GB/T 14272	
GB/T 18132	
EN ISO 13933-3	
EN ISO 13935-1	
EN ISO 13935-2	
EN ISO 13936-1	
EN ISO 13936-2	

STRETCH AND RECOVERY (CYCLIC)

ASTM D4964	M&S P14 series
ASTM D6614	M&S P15 series
BS 4952	Next TM21 series
DECATHLON DS-275	
EN 14704-1	
FZ/T 70005	
FZ/T 70006	
JIS L1096	

TEAR STRENGTH

ASTM D2212	GB/T 2711
ASTM D2261	JIS L1096
ASTM D2724	Next TM25
ASTM D5587	
ASTM D5735	
BS 3424: Part 5	
EN ISO 11644 (IUF 470)	
EN ISO 13937-2	
EN ISO 13937-3	
EN ISO 13937-4	

YARN STRENGTH

ASTM D1578	
ASTM D2256	
BS 1932-2	
EN ISO 2062	
GB/T 3916	
ISO 6939	
M&S P70	

If the Standard required is not on this list, we should be able to develop it relatively easily and add it to the Standards Library - in most cases the development process is simple.

TECHNICAL DATA

Measuring Principle:	Constant Rate of Extension (CRE)
Capacity (Tension & Compression):	5000 N, 5kN, 500kgf and 1100lbf
Load Cells:	Three (3) load cells can be configured from a choice of five (5): 5000 N 1,000 N or 500 N (not 1000N and 500N) 100 N or 200 N (not 200N and 100N) Quick-change cartridge, auto-recognition "S" beam cells
Test / Return / Jog Speed:	1 - 2000mm/min
Accuracy of Load Cells Class:	0.5 (±0.5%) from 2 - 100% of load cell capacity
Speed Accuracy:	±0.005%
Maximum Stroke:	560mm - Maximum usable extension with T27 jaws fitted
Total Vertical Stroke:	700mm - Maximum movement of the head between limit switches when no jaws are fitted
Positional Accuracy:	± 0.00125mm
Calibration:	Load Cells: ISO 7500-1 (UKAS accredited) & ASTM E4 Instrument: ISO 7500-1 & ASTM D76
Safety:	CE marked (complies with Machinery, Low Voltage & EMC Directives)
Warranty:	18 months

COMPUTER SPECIFICATION

Personal Computer (PC) - Minimum Specification	
PC	Personal Computer (PC) running Microsoft Windows The use of other operating systems running Windows as a VM is not supported
Processor:	As specified or required by the operating system (OS)
RAM:	As specified or required by the operating system (OS)
OS:	Windows® 8, Windows® 7, Windows® Vista Not compatible with Windows® XP Microsoft.NET 4.0 framework is required (included on disc)
Monitor:	Minimum resolution of 1024x768 pixels
HDD:	Minimum 250 GB
Ports:	At least 2 free USB 2.0 ports
Printer:	Any Windows compatible printer Colour printer recommended but not essential

INSTALLATION, SPARE PARTS, SERVICE & CALIBRATION

Installation and Commissioning (Optional service)

- A James Heal engineer will unpack, position and connect a new Titan⁵ to the electrical and air supplies.
- Install the TestWise Software onto a PC or laptop and ensure that the entire system is working perfectly.
- Undertake basic training to the point where a designated laboratory technician should feel confident to start testing products.

Additional advanced training from a textile technologist, is offered as a separate service. This training can be carried out at the location of the Titan⁵ or alternatively at James Heal in Halifax, England

Spare Parts Kit

A **2-year Spares Kit** is available, stock code **1410-spares**, comprising of the items below;

130-825	Fuse 1A	383-363	Timing Belt
130-853	Fuse 2A	390-286	Electro-Pneumatic regulator
150-439	Power Supply 24V	390-281	Solenoid Valve
160-471	Micro switch		

These items can also be ordered individually.

Service & Calibration

Load cells: Calibration at least once a year is recommended to confirm their continuing accuracy.

James Heal instrument technicians are accredited by UKAS.

Calibration procedures comply with ISO 17025.

It is recommended the Titan⁵ is serviced and calibrated annually.

POWER & COMPRESSED AIR

Power		Compressed Air Supply	
110-230V±10%	50/60 Hz	Working Pressure: 7-10 bar, 700-1000 kPa, 100-145 psi	
Single Phase		Minimum Flow:	17 litres per minute
Watts:	750W	Filtration:	5 microns or better to remove oil and moisture
amps:	5A	Pipe Outlet:	4mm
		Air Regulator:	Not Required - Built into Titan

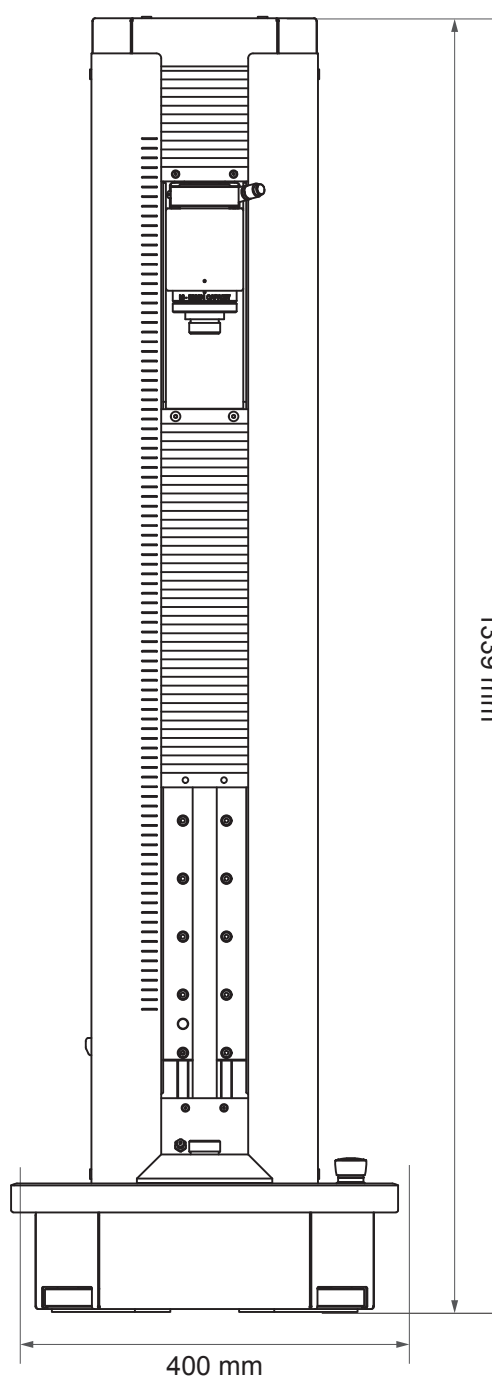
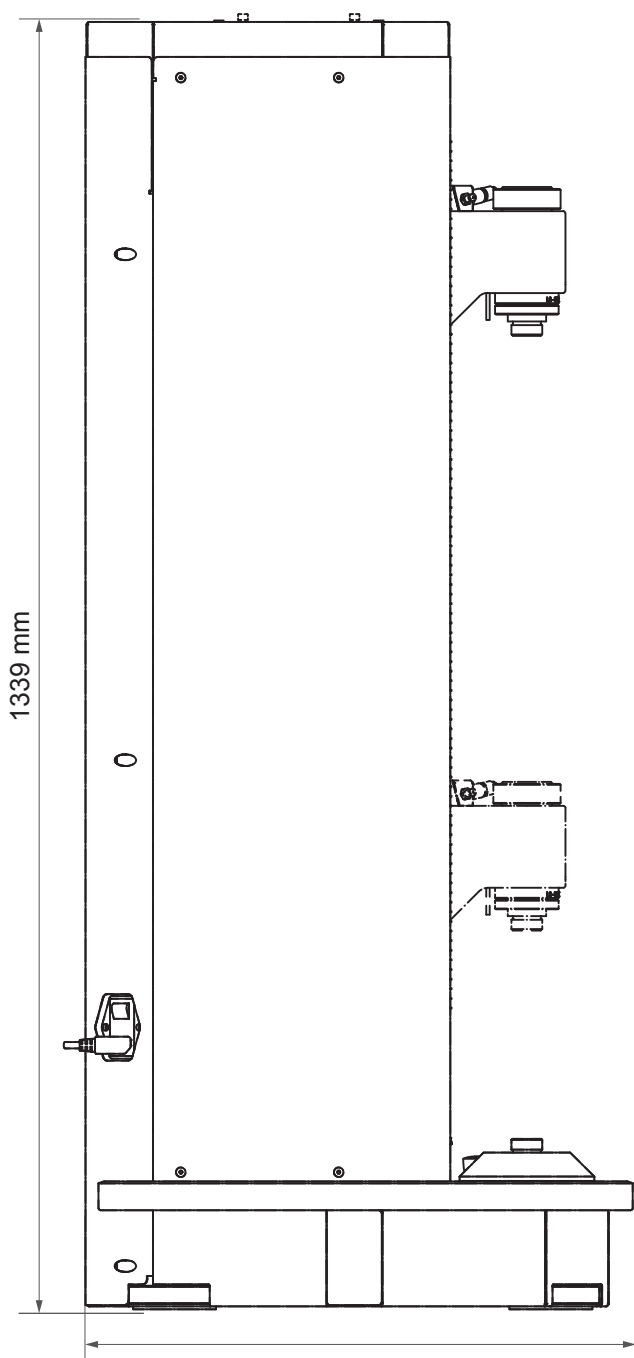
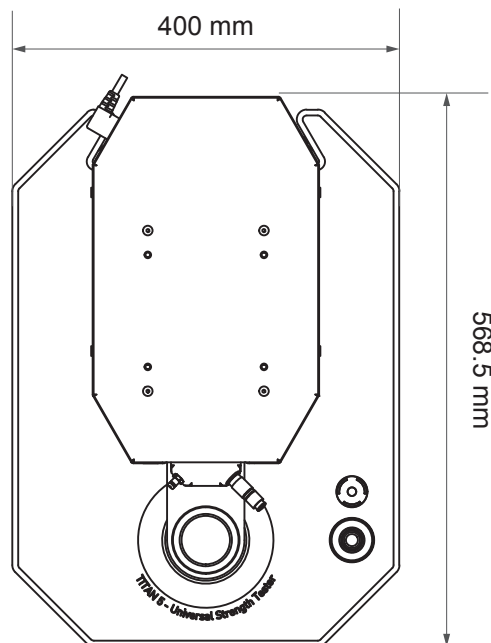
Electrical supply should be free from spikes and surges exceeding 10% of the working voltage.

DIMENSIONS & WEIGHT

The Titan⁵ is designed to be placed upon on a bench and it is recommended the instrument is located within a conditioned atmosphere.

Dimensions (mm)	Height	Width	Depth	Approx Weight (kg)
Titan ⁵	1339	400	568.5	82*

*Excluding Transit Frame



SELECTOR TABLE

LEGEND

- Essential / Recommended
- User Choice dependent on Applications

			STOCK CODE	Fabric Tensile	Yarn Strength and Tenacity	Seam Slippage	Security of Attachments	Zip Testing	Button Strength	Pile Loop Extraction	Tear Strength	Peel Bond / Adhesion	Stretch & Recovery	Ball Burst	Puncture	Leather Testing	Friction Testing	
MODEL 1410																		
Titan ⁵ - Universal Strength Tester 110-230V 50/60Hz			904-506	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
SOFTWARE																		
TestWise Test Analysis Software			794-896	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
TestWise Test Analysis Software Maintenance & User Support Package																		
1 year subscription			206-001	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2 years subscription			206-002	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
3 years subscription			206-003	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
CARTRIDGE LOAD CELLS																		
Load Cell L8 (5000N)	5000N - 50N	(500kgf - 5kgf)	794-730	■	■			■	■					■				
Load Cell L9 (1000N)	1000N - 10N	(100kgf - 1.0kgf)	794-704	■	■	■	■	■	■					■	■	■		
Load Cell L11 (500N)	500N - 5N	(50kgf - 0.5kgf)	794-706	■	■	■	■	■	■					■	■	■	■	
Load Cell L10 (200N)	200N - 2.0N	(20000gf - 200gf)	794-705		■						■	■	■	■	■	■	■	
Load Cell L12 (100N)	100N - 1.0N	(10000gf - 100gf)	794-707		■					■	■	■					■	
CALIBRATION																		
ISO Certificate of Calibration for Titan (Machine Only) *			201-928	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
UKAS Certificate of Calibration for Titan 5000N Load Cell (9 point calibration in tension)			202-531	●				●	●					●				
UKAS Certificate of Calibration for Titan 5000N Load Cell (9 point calibration in compression up to 3000N only)			202-532											●				
UKAS Certificate of Calibration for Titan 1000N Load Cell (9 point calibration in tension)			202-534	●		●	●	●	●								●	
UKAS Certificate of Calibration for Titan 1000N Load Cell (9 point calibration in compression)			202-535											●	●			
UKAS Certificate of Calibration for Titan 500N Load Cell (9 point calibration in tension)			202-537	●	●	●	●	●	●		●	●	●				●	
UKAS Certificate of Calibration for Titan 500N Load Cell (9 point calibration in compression)			202-538								●	●	●		●	●		
UKAS Certificate of Calibration for Titan 200N Load Cell (9 point calibration in tension)			202-540		●	●	●	●	●		●	●	●				●	
UKAS Certificate of Calibration for Titan 200N Load Cell (9 point calibration in compression)			202-541											●	●			
UKAS Certificate of Calibration for Titan 100N Load Cell (9 point calibration in tension)			202-543		●					●	●	●					●	
UKAS Certificate of Calibration for Titan 100N Load Cell (9 point calibration in compression)			202-544											●	●			
GRIPS & FIXTURES																		
T27 Universal Pneumatic Fabric Grips (pair)			794-927	●		●	●	●	●	●	●	●	●				●	
2 line contact jaw faces 100 x 6mm diameter and 2 plain steel jaw faces 100 x 30mm			794-877											■				
2 line contact jaw faces 75 x 6mm diameter and 2 plain steel jaw faces 100 x 30mm			794-929											■				
T4 Button Holder (used with T27)			794-864						●									
T5 Pneumatic Yarn Grips (pair)			794-806		●													
T8 Needle Clamp [Apparel Version] (used with T27)			794-686			●												
T9 Needle Clamp [Upholstery Version] (used with T27)			794-687			●												
T12 Attachments Kit (used with T27)			794-866				●											
OctoGrip			794-867				●											
T13 Pile Loop Extraction Kit (used with T27)			794-844							●								
T14 Zip Testing Kit (used with T27)			794-879					●										
T15 Pneumatic Yarn Grips (pair)			794-883		●													
T18 Loop Bars (pair)			794-889										●					
T19 Check Weight Set			794-891	■	■	■	■	■	■	■	■	■	■			■	■	
T20A - Clamp for Ball Burst and Puncture Tests			794-894											●	●			
T20A - Ball Probe			794-895											●				
T20B - Screwdriver Puncture Attachment			794-839												●			
T21 C-Clamps (pair)			794-838										●					
T22 Hank Bollards / Skein Spools			794-602		●													
T23A Manual Fabric Grips (5kN)			794-920	■		■	■	■	■	■	■	■	■			■	■	
T24 Button & Stud Holder (used with T27)			794-858				●		●									
T25 Manual Yarn Grips (pair)			794-931		■													
T26 Bra Wire Penetration Tool (used with T27)			794-932													●		
T28 Coefficient of Friction Fixture			794-936														●	
GRIPS FOR LEATHER																		
Baumann / Slit Tear Clamps			794-885													●		
ASTM Slit Tear Clamps			794-882													●		
Adhesion of Finish Kit			794-886													●		
Leather Ball Burst			794-887													●		
COMPRESSORS (used with T5, T12, T15 and T27)																		
Titan Compressor 230V 50Hz			783-218	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
TruBurst Compressor 230V 50Hz			783-217	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Dual User Compressor (Titan and TruBurst) 230V 50Hz			783-219	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Titan Compressor 110V 60Hz			783-221	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
TruBurst Compressor 110V 60Hz			783-220	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Dual Use Compressor (Titan and TruBurst) 110V 60Hz			783-222	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

* Based on ISO 7500-1 Annex A and ASTM D76