

TESTING INSTRUMENTS

High precision textile testing instrumentation



TEST MATERIALS

Guaranteed fit-for-purpose test materials for textile testing procedures

SERVICE AND CALIBRATION

Worldwide installation, maintenance and calibration service

TECHNICAL ASSISTANCE

Expert engineering and applications support



A world wide presence

James Heal has Agents and Distribution Partners in over 60 countries. Please visit our website www.james-heal.co.uk,

for more information and contact details for your local James Heal Agent.

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Setting the Standard

AGENT

 James Heal™

TITAN⁴

UNIVERSAL STRENGTH TESTER



AT JAMES HEAL WE DON'T DESIGN INSTRUMENTS, WE CREATE SOLUTIONS

Setting the Standard

We listen intently to textile technologists, engineers, software designers and most importantly to you.

Adding our expertise and ability to innovate, we strive to produce the most desirable, intuitive and productive testing machines in the world.

Not only do our machines do what we say, but they also look and feel good and are really easy to use.

Our unique product signature makes our instruments stand out, enhancing the appearance of your laboratory and creating confidence in the minds of your customers.

Never willing or content to accept the ordinary, we challenge continuously and set the standard.

Brand values of Precision, Pedigree, Innovation, Leadership and Integrity guide our efforts to provide cost effective and attractive solutions for your testing needs.

You can count on James Heal to supply you with equipment and services of the highest standard and to complete every job to a level, which will exceed your expectations.

Titan⁴ Universal Strength Tester

Titan⁴ is an outstanding, fourth generation Universal Strength Tester, designed specifically for testing textiles, nonwovens, and leather products - whether they are in the form of yarns, fabrics, garments or attachments to garments. The instrument is easily adapted for testing other materials like paper and plastics.

Innovative, precision engineering and an intuitive understanding of a user's requirements are combined in an aesthetically pleasing and ergonomic instrument. The TestWise Test Analysis Software has a Microsoft Windows look and feel and utilises familiar textile terminology.

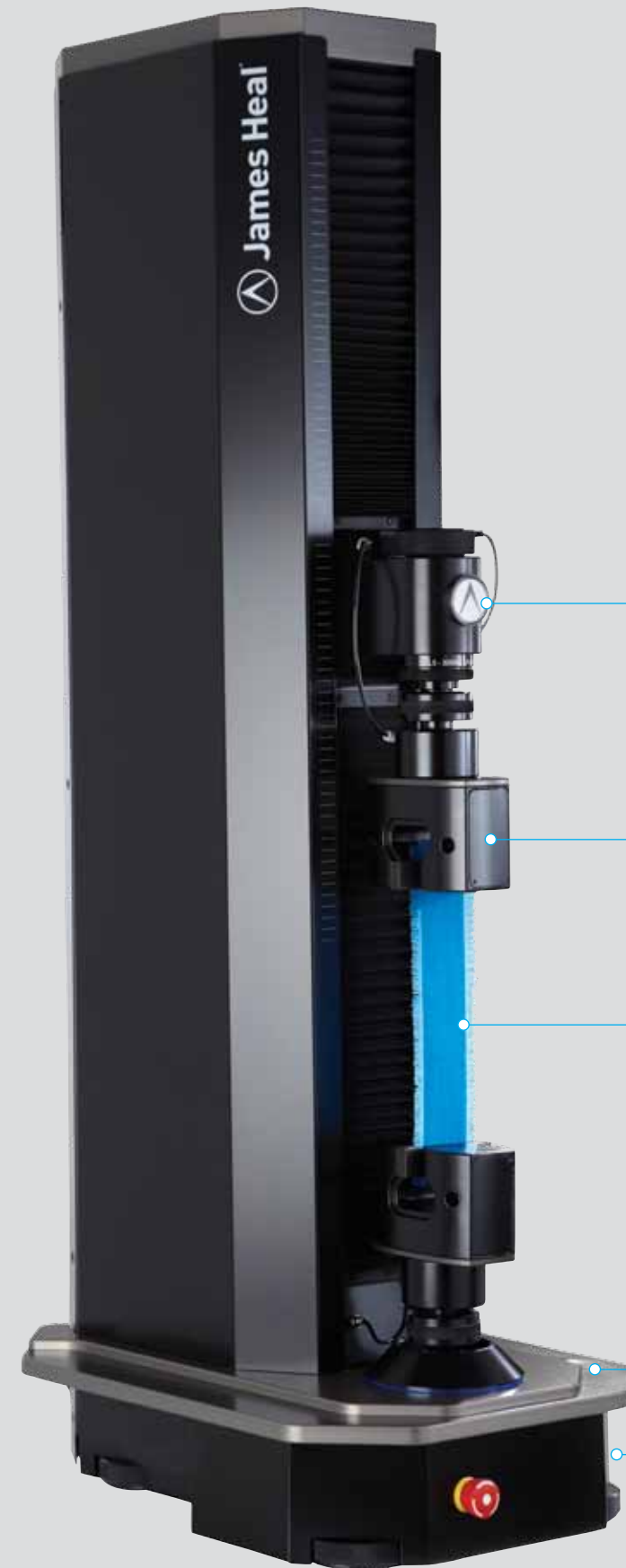
Three different load cells (up to 3000 N capacity) are available together with a comprehensive range of manual and pneumatic grips. Titan⁴ is programmed with an extensive library of national and international standards as well as retailers' test methods. If you have something unexpected to test, the 'Standards Editor' makes it simple to modify existing test methods or to create new ones.

Helping you to make the most of your investment, the Software Maintenance and User Support Package provides online access to our applications engineers and includes one major software update every year.

"COMBINING EXPERTISE WITH INNOVATION TO CREATE EXTRAORDINARY TESTING SOLUTIONS"

TITAN⁴

COMBINING PRECISION, FLEXIBILITY AND EASE OF USE



- Areas of Application**
 - Yarns
 - Woven and knitted fabrics
 - Coated fabrics
 - Nonwovens
 - Leather
- Operating Modes**
 - Tension
 - Compression
 - Maximum Capacity: 3000 N

- Precision cartridge load cell for safe handling

- Tool-free interchangeable manual or pneumatic grips

- Automatic setting of jaw separation based on selected Standard

- Conveniently situated multi-functional controller

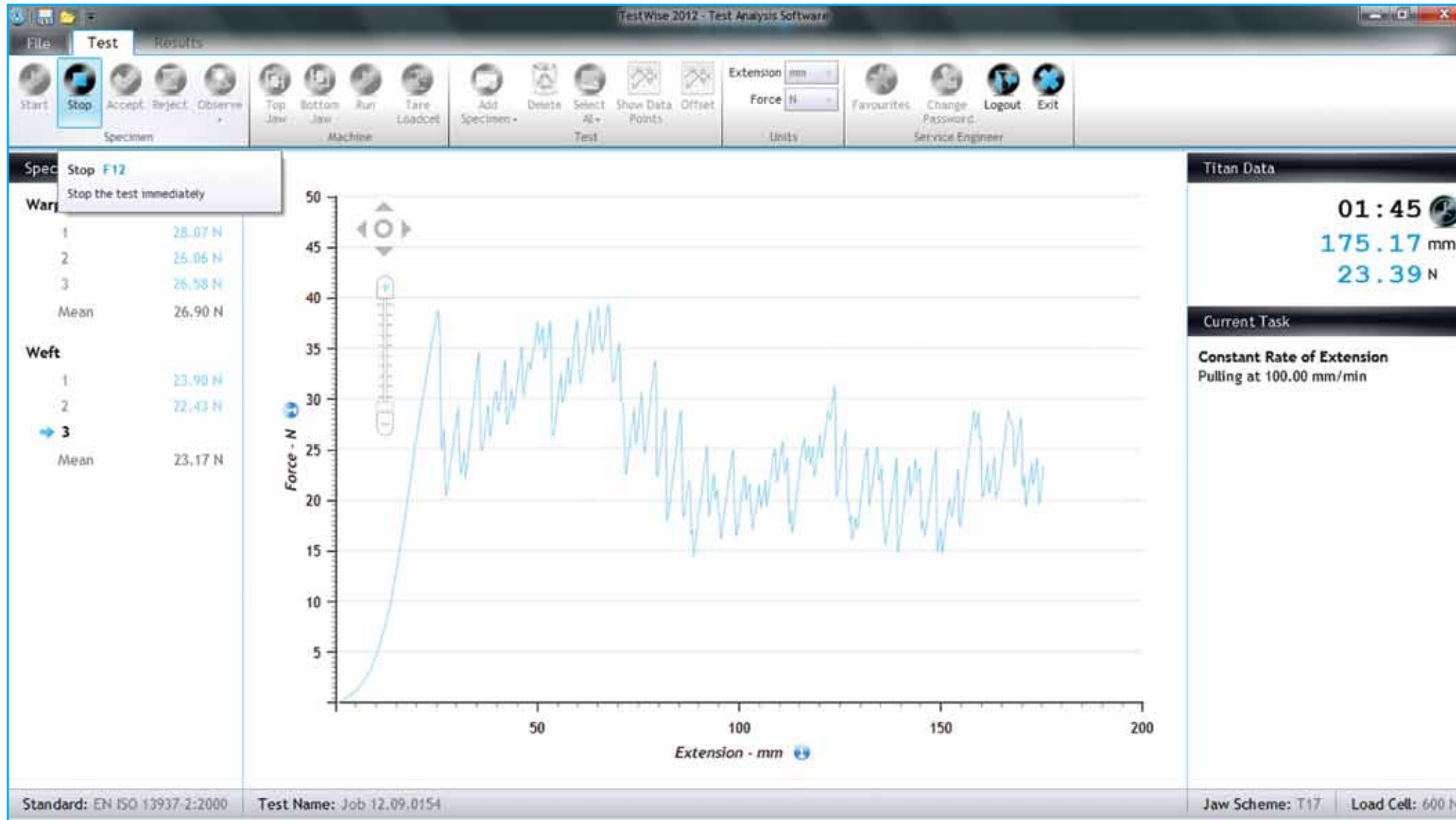
- Pneumatic connection to compressor or factory airline
- USB connection to laptop or PC

TESTWISE SOFTWARE

TestWise is specially developed test analysis software that complements the Titan⁴.

TestWise combines a simple user interface and comprehensive analysis functionality.

Developed by a James Heal software specialist this is intuitive software designed for the quick and effective administration of testing procedures.



FEATURES AND BENEFITS OF TESTWISE:

- The TestWise menu bar gives easy access to all features
- The user interface has the familiar look and feel of Microsoft Office
- Single integrated application with no modules or additional costs
- TestWise has been optimised to run in Windows 7 and Windows 8 (also runs in XP and Vista)
- Runs in 32-bit or 64-bit Windows
- Connection to Titan⁴ is via USB
- Customisable statistical reporting – you get just what you need
- Automatic adjustment of test parameters, including gauge length, according to the Standard
- Specimen test results including current mean value allow immediate visibility of trends
- Testing in just three clicks of the mouse
- Real-time Graphing Area with Auto-Scaling and Zoom Control
- Real-time presentation of Time, Extension and Force values allows monitoring of results during testing
- Extensive Standards Library and Standards Editor allowing the creation of user-defined Standards
- Each user can create their own Favourite list of Standards



Pre-loaded Standards Library

Extensive library of pre-loaded national and international Standards and retailer test methods 'Standards Editor' allows development of own test methods



Favourites Selection

Simple selection of commonly used tests saves time and personalises software for unlimited number of users

T4 Button Holder (used with T17)



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

T5 Pneumatic Yarn Grips



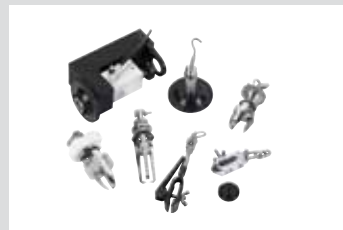
- Testing strength of yarn
- Maximum force: 120 N
- Aluminium jaw faces (plain)
- Optional ABS jaw faces (corrugated)
- Standards: ASTM D2256, EN ISO 2062

T8 and T9 Needle Clamps (used with T17)



- T8 for apparel fabrics
- T9 for upholstery fabrics
- Seam slippage test (without sewing)
- Standards: EN ISO 13936-3

T12 Attachments Kit (may require T17)



- Testing security of attachments
- Suitable for garments
- Range of grips and pneumatic lower clamp
- Standards: EN 71-1, M&S and Next

T14 Zip Test Kit (used with T17)



- Testing strength of zip elements
- Wide range of grips included
- Standards: BS 3084

T15 Pneumatic Yarn Grips



- Testing strength of yarn
- Maximum force: 1000 N
- Standards: ASTM D2256, EN ISO 2062

T17 Universal Pneumatic Jaws



- Tensile strength, seam slippage and tear tests
- Max force: 3000 N (300 kgf)
- Range of interchangeable jaw faces
- Tool free magnetic jaw faces
- Side entry and zero jaw separation

T18 Loop Bars (pair)



- Stretch and recovery tests
- Specimens up to 125mm wide
- 4mm, 6.5mm, 8mm, 10mm and 13mm Ø bars
- Standards: EN 14704-1, ASTM D4964, Adidas 4.27

T20A Ball Burst



- Ball burst test for fabrics
- Alternative clamps and probes available on request
- Operates in compression mode
- Standards: ASTM D751, D3787, D6797

T21 C-Clamps



- Stretch and recovery tests
- Specimens up to 125mm wide
- 8mm and 10mm Ø bars
- Standards: EN 14704-1, ASTM D4964, Adidas 4.27

Fabric Strength Test (T17)



Seam Slippage Test (T17)



Compression Test (T20A)



Tear Strength Test (T17)



Baumann Tear Strength



Security of Attachments Test (T12)



Stretch and Recovery Test (T18)



Hank (Lea) Strength Test



Button Strength (T4)



Installation and commissioning service

We offer an optional installation and commissioning service. Our engineer will unpack, position and connect your new Titan⁴ to your electrical and air supplies. He will also install the TestWise Software on your PC or laptop and ensure that the entire system is working perfectly.

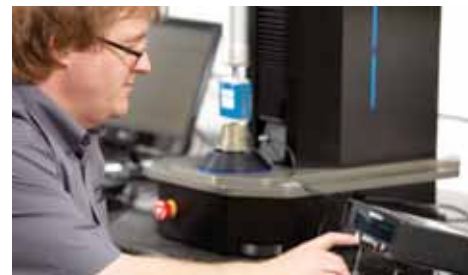
He will then carry out basic training to the point where the designated laboratory technician should feel confident to start testing your products. If you require more advanced training from a textile technologist, this is offered as a separate service. This training can be carried out on your site or alternatively at James Heal in Halifax, England.



Contractual maintenance and calibration

The load cells should be calibrated at least once a year to confirm their continuing accuracy. Our instrument technicians are accredited by UKAS (United Kingdom Accreditation Service). UKAS is recognised worldwide as a leading calibration authority. Calibration procedures comply with ISO 17025.

Comprehensive Certificates of Calibration are issued to confirm the calibration status of the load cells. Our Certificates will satisfy your own accreditation requirements, whether these relate to your Quality Management System, your customers or independent accrediting organisations.



Software maintenance and user support

The TestWise Test Analysis Software is in a constant state of evolution. There is a continuous development programme, so that new Standards and test methods, as well as improved functionality, are being added. You can keep your own software and Standards Library up to date by subscribing to our Software Maintenance and User Support Scheme.

For a modest annual subscription, you receive the following:

- Minimum of one software upgrade per annum (comprising new Standards/test methods and additional functionality)
- Online Applications and Support (three one hour sessions per year)
- The opportunity to supply your own ideas and to contribute to the future development of the software



Standards Library

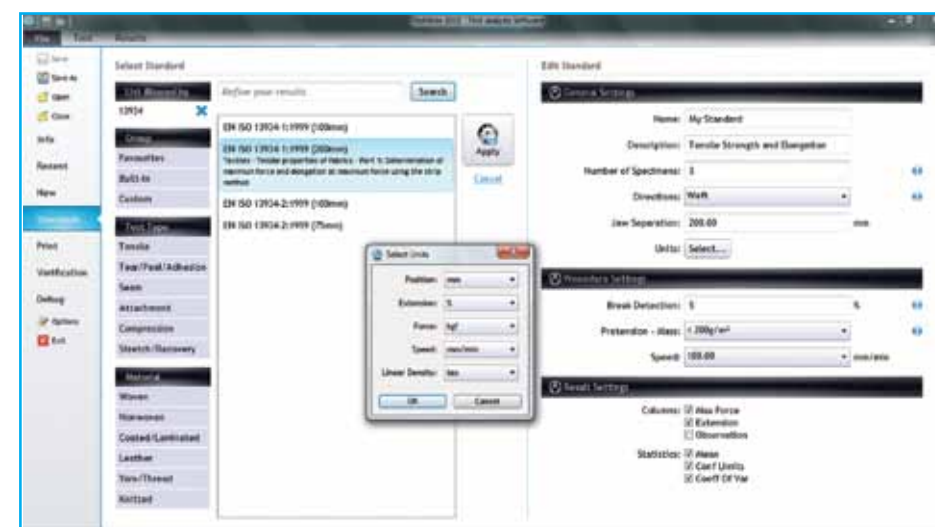
Titan⁴ and TestWise have been developed based on a wide variety of national and international Standards and retailer test methods. This list is only a summary of

the pre-loaded Standards. For a more comprehensive list please visit the James Heal website. Even if the Standard you want to work with is not on this list,

we can normally develop it easily and add it to the Standards Library. Do not be afraid to ask, in most cases the development process is simple.

Fabric Strength	Compression	Tear Strength	Seam Strength and Seam Slippage
ASTM D5034		ASTM D5587	
ASTM D5035	ASTM D6797	ASTM D2724	EN ISO 13935-1
EN ISO 13934-1	ASTM D3787	ASTM D2261	EN ISO 13935-2
EN ISO 13934-2	ASTM D4830	ASTM D2212	EN ISO 13936-1
EN ISO 1421	ASTM D5748	ASTM D5735	EN ISO 13936-2
ISO 9073-3	ASTM D751	EN ISO 13937-2	EN ISO 13933-3
ISO 3376 (IUP 6)	EN 12332-1	EN ISO 13937-3	ASTM D434
ISO 5082	EN 14704-2	EN ISO 13937-4	ASTM D1683
ISO 5081	EN 388	EN ISO 11644 (IUF 470)	ASTM D5822
M&S P11	ISO 3303	BS 3424:Part 5	ASTM D4034
M&S P11A	ISO 9073-5	Attachments	M&S P12
M&S P11B	WSP 110.5	BS 4162	M&S P12A
M&S P11C	EN 71-1	EN 15598	M&S P12B
M&S P43	Yarn Strength	ASTM D4846	M&S P12C
Peel Bond / Delamination		ASTM D7142	Stretch and Recovery (Cyclic)
EN ISO 2411	ASTM D1578	ASTM D2061	EN 14704-1
EN ISO 11644 (IUF 470)	ASTM D2256	BS 3084	BS 4952
M&S P13	BS 1932-2	ASTM F963	ASTM D4964
M&S P13A	EN ISO 2062	EN 71-1	ASTM D6614
ASTM D5170	ISO 6939	M&S P115 series	M&S P14 series
ASTM D2724	M&S P70	M&S P122	M&S P15 series
DIN 54310	BS 1932-2	M&S P124	Next TM21 series

Standards Editor



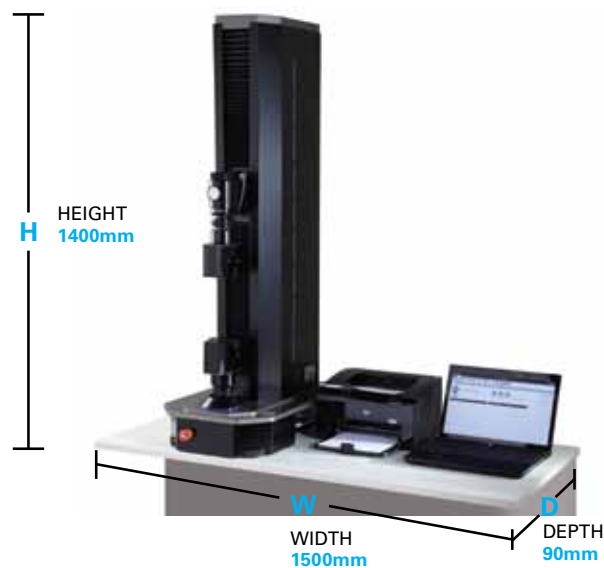
TestWise includes a "Standards Editor" which allows you to customise existing Standards and create new ones which meet your more specific requirements. Once a new standard has been created it is available and ready for use in the Standards Library.

We keep the Standards Library up to date with current Standards but it also contains many older Standards which may have been superseded although they are still widely used in industry.

If you are a retailer and would like James Heal to develop a suite of Standards for Titan⁴ then we would be pleased to create them for the benefit of your suppliers. Please contact us for more details.

Measuring Principle	Constant Rate of Extension (CRE)
Capacity (Tension & Compression)	3000 N, 3kN, 300kgf and 670lbf
Load Cells	3000 N, 600 N and 120 N. 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	660mm
Total Vertical Stroke	885mm
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

Electrical Supply	
Single phase 110-230V±10% 50/60Hz 500W. Electrical supply should be free from spikes and surges exceeding 10% of the working voltage.	
Compressed Air Supply	
Working Pressure	7-10 bar, 700-1000 kPa, 100-145 psi
Minimum Flow	17 litres per minute
Filtration	5 microns or better to remove oil and moisture
Pipe Outlet	4mm
Air Regulator	Not Required, built in to Titan ⁴



LEGEND	ORDER CODE	Fabric Tensile	Yarn Tensile	Seam Slippage	Security of Attachments	Zip Testing	Button Strength	Pile Loop Extraction	Tear Strength	Peel Bond	Stretch & Recovery	Ball Burst	Puncture	Crushing	Leather
		● Essential / Recommended	▲ Optional	■ User Choice dependent on Applications	◎ Special Order										
MODEL 110															
Titan ⁴ - Tension and Compression	904-505	●	●	●	●	●	●	●	●	●	●	●	●	●	●
SOFTWARE															
TestWise Test Analysis Software	794-896	●	●	●	●	●	●	●	●	●	●	●	●	●	●
TestWise Test Analysis Software Maintenance and User Support Package															
1 year subscription	206-001	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2 years subscription	206-002	■	■	■	■	■	■	■	■	■	■	■	■	■	■
3 years subscription	206-003	■	■	■	■	■	■	■	■	■	■	■	■	■	■
LOAD CELLS															
L5 Load Cell 3000N (300kgf)	794-700	■			■	■	■					■	■	■	
L6 Load Cell 600N (60kgf)	794-701	■	■	■	■	■	■	■	■	■	■	■	■	■	■
L7 Load Cell 120N (12kgf, 12000gf)	794-702		■					■	■	■	■	■	■	■	
CALIBRATION															
UKAS Certificate of Calibration for Titan 3000N Load Cell (6 point calibration in tension)	202-517	●	●	●	●	●	●	●	●	●	●				●
UKAS Certificate of Calibration for Titan 3000N Load Cell (9 point calibration in tension)	202-511	●	●	●	●	●	●	●	●	●	●				●
UKAS Certificate of Calibration for Titan 3000N Load Cell (9 point calibration in compression)	202-522											●	●	●	
UKAS Certificate of Calibration for Titan 600N Load Cell (6 point calibration in tension)	202-518	●	●	●	●	●	●	●	●	●	●				●
UKAS Certificate of Calibration for Titan 600N Load Cell (9 point calibration in tension)	202-512	●	●	●	●	●	●	●	●	●	●				●
UKAS Certificate of Calibration for Titan 600N Load Cell (9 point calibration in compression)	202-523											●	●	●	
UKAS Certificate of Calibration for Titan 120N Load Cell (6 point calibration in tension)	202-519	●	●	●	●	●	●	●	●	●	●				●
UKAS Certificate of Calibration for Titan 120N Load Cell (9 point calibration in tension)	202-513	●	●	●	●	●	●	●	●	●	●				●
UKAS Certificate of Calibration for Titan 120N Load Cell (9 point calibration in compression)	202-524											●	●	●	
ISO Certificate of Calibration for Titan (Machine Only)	201-928	●	●	●	●			●	●	●	●	●	●	●	●
GRIPS & FIXTURES															
T17 Pneumatic Fabric Jaws supplied with 100x25mm and 25x25mm rubber faces	794-888	●		●	●		●	●	●	●	■				●
T17 Additional Jaw Faces and Spares:															
Plain Steel Jaw Faces 100x25mm (4)	794-873	■			■										
Rubber Lined Jaw Faces 75x25mm (4)	794-874	■			■										
Rubber Lined Jaw Faces 25x25mm (2)	794-875														
Rubber Lined Jaw Faces 200x35mm (4)	794-893								■						
"Line Contact (6mm Ø) Jaw Faces (2) and Plain Steel Jaw Faces 100x25mm (2)"	794-877										■				
4 metal jaw faces 100 x 45mm (used with T17)	794-884														●
T8 Needle Clamp for Apparel (used with T17)	794-886			■											
T9 Needle Clamp for Upholstery (used with T17)	794-887			■											
T5 Pneumatic Yam Grips (Pair) - 120 N max	794-806		●												
T15 Pneumatic Yam Grips (Pair) - 1000 N max	794-883		●												
Skein Spools (Hank Bollard Grips)	794-602		●												
T4 Button Holder (used with T17)	794-864				■		●								
T18 Loop Bars (Pair) - for specimens up to 125mm wide	794-889										■				
T21 C-Clamps (Pair) - for specimens up to 125mm wide	794-892										■				
T20A Ball Burst Compression Tooling (Clamp & Probe)	794-890											●			
T12 Attachments Kit (may require T17)	794-866				●										
T13 Pile Loop Extraction Kit (used with T17)	794-844							●							
T14 Zip Testing Kit (used with T17)	794-879					●									
Baumann / Slit Tear Clamps	794-885														●
ASTM Slit Tear Clamps	794-882														●
Adhesion of Finish Kit	794-886														●
Other Compression Tooling													◎	◎	
OTHER															
T19 Check Weight Set	794-891	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Air Compressor 230V 50Hz	783-224	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲				▲
Air Compressor 110V 60Hz	783-232	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲				▲
Spare Parts Kit	110-spares	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲

6 or 9 point calibration ?

6 point calibration is carried out at: 0%, 20%, 40%, 60%, 80% and 100% of load cell capacity.

9 point calibration is carried out as the 6 point but in addition: 2%, 5% and 10%.

If testing at the bottom end of the scale then 9 point calibration is recommended.