James Heal
Extraordinary Testing Solutions

FAQ

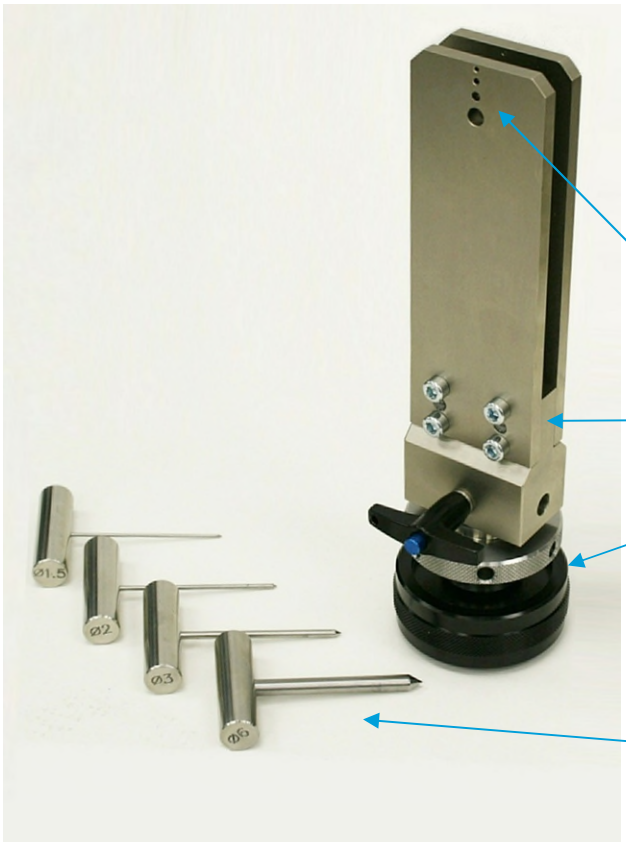
Setting Up the 794-416 NT01 Nail Tear Fixture

This FAQ describes the procedure used in TestWise to set up the NT01 Nail Tear Fixture with Titan5. This fixture can be used for UNE 40413: 2002. The procedure assumes the use of the latest version of TestWise, the procedure for older versions may be different.

Extreme care should be taken when working with this fixture as it uses sharp points, the so called "nails".

The specimens used with this fixture are rectangular strips of material, 200 mm x 50 mm.

The 794-416 / NT01 Kit



The 794-416 NT01 Kit comprises the main fixture, an adaptor to allow connection to Titan5, and 4 different diameter nails.

The kit needs to be used in conjunction with an upper fabric grip such as T27 Pneumatic Grips.

Nail holes - corresponding to nail sizes below

Main fixture

Adaptor for Titan5

Nails:

1.5 mm ∅, 2.0 mm ∅, 3.0 mm ∅ and 6.0 mm ∅

Maximum Force Permitted for Nails

Use an appropriate loadcell to help protect against accidental breakage of the Nails.

Nail Diameter (mm)	Maximum Force Permitted (N)
1.5	200
2.0	500
3.0	1000
6.0	5000

Connecting the fixture to Titan

Connect a suitable loadcell to Titan5, typically a 200 N loadcell will be satisfactory.

Connect a single T27 Pneumatic Grip to the loadcell.
Use full width rubber jaw faces.

Connect the fixture as shown below using the adaptor.

Manually move the top T27 Grip to within 50 – 100 mm of the top edge of the fixture.

Setting Up the Jaws in TestWise

During this step, we will setup four (4) different Jaws, one (1) for each of the different nail diameters.

The most frequently used Jaws are already defined and setup in TestWise, however, this a special fixture and the Jaws are not setup.

This step cannot be skipped, it must be done before creating the Jaw Scheme.

In TestWise, goto the File menu and click on Options, then Jaws, then New.

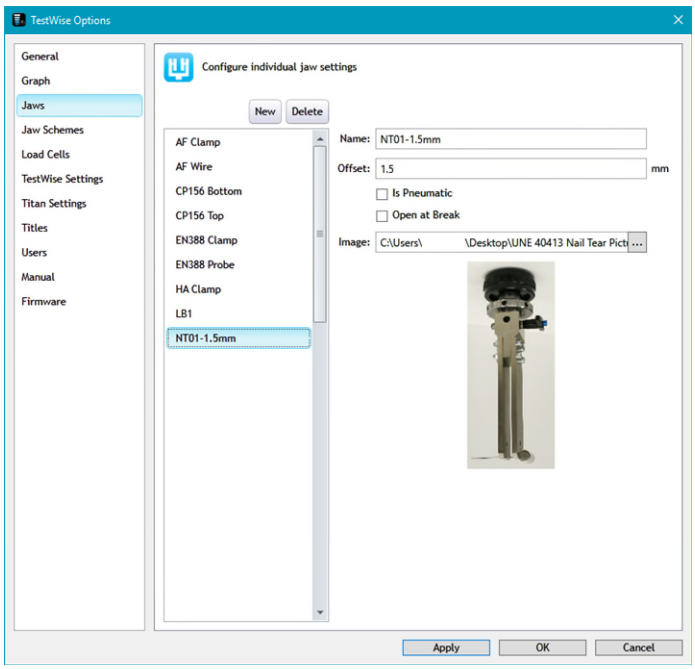
For each of the four (4) "Jaws", enter the details as shown on the following two (2) pages.

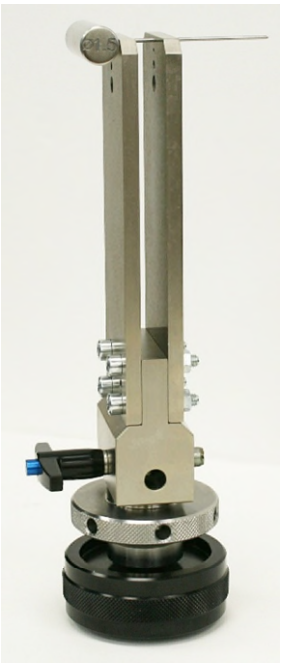
After each Jaw is created, click the Apply button, then repeat until all four are completed.

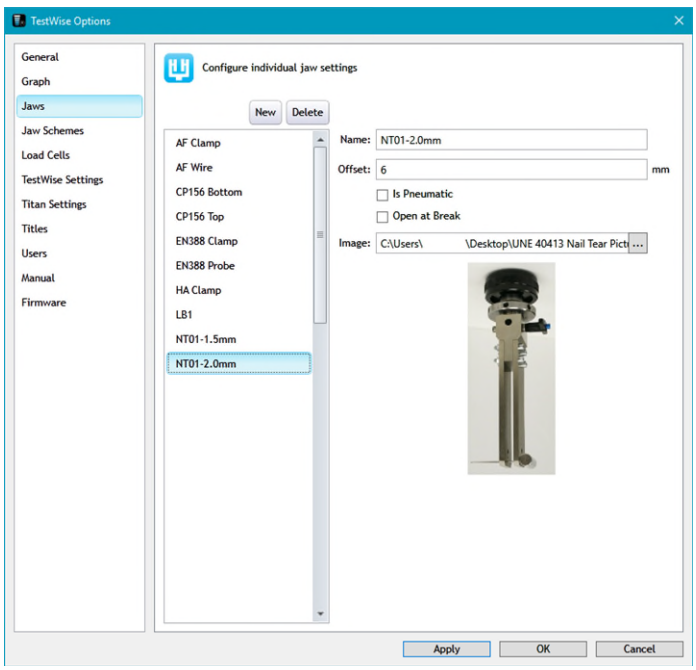
Enter the name of each Jaw as shown in the pictures, the names are repeated here in case the image is unclear.

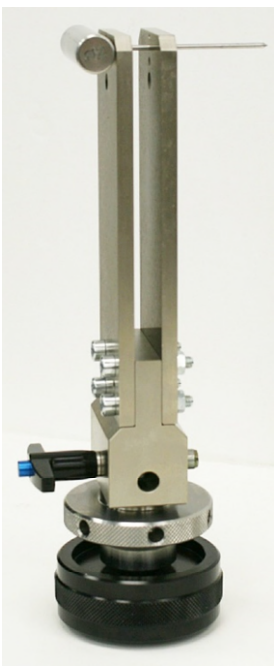
Jaw Name	Offset value (mm)
NT01-1.5mm	1.5
NT01-2.0mm	6
NT01-3.0mm	11
NT01-6.0mm	18

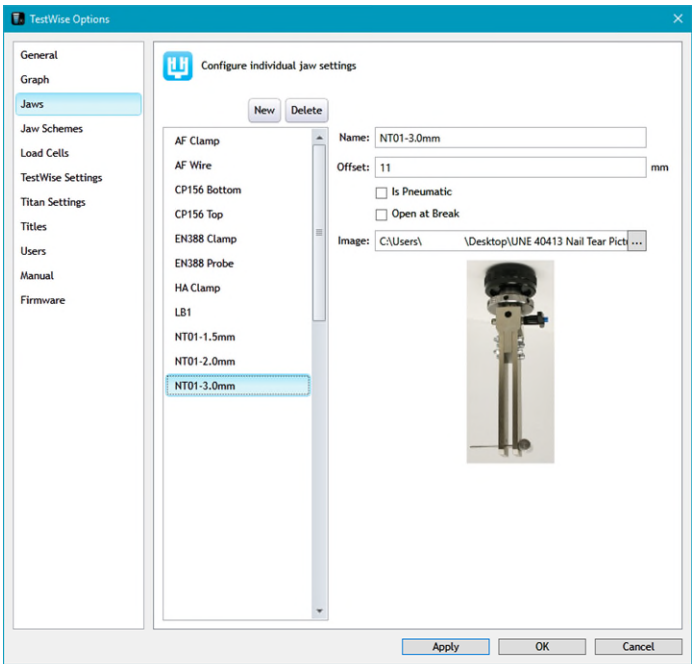
Using Jaw images is optional. The images have been supplied in this package. Copy and Save them in a folder where there will not be deleted. Select Jaw image by using the browse button (…)

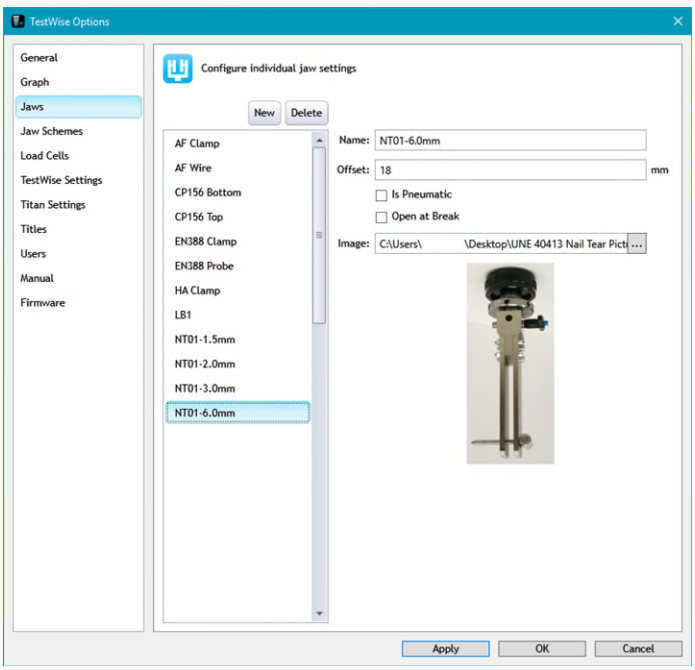

TestWise Options
General
Graph
Jaws
Jaw Schemes
Load Cells
TestWise Settings
Titan Settings
Titles
Users
Manual
Firmware
Configure individual jaw settings
New
Delete
AF Clamp
AF Wire
CP156 Bottom
CP156 Top
EN388 Clamp
EN388 Probe
HA Clamp
LB1
NT01-1.5mm
Name: NT01-1.5mm
Offset: 1.5 mm
Is Pneumatic
Open at Break
Image: C:\Users\ \Desktop\UNE 40413 Nail Tear Pict
Apply
OK
Cancel

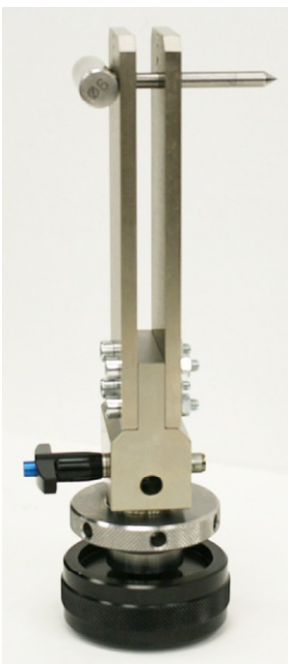



TestWise Options
General
Graph
Jaws
Jaw Schemes
Load Cells
TestWise Settings
Titan Settings
Titles
Users
Manual
Firmware
Configure individual jaw settings
New
Delete
AF Clamp
AF Wire
CP156 Bottom
CP156 Top
EN388 Clamp
EN388 Probe
HA Clamp
LB1
NT01-1.5mm
NT01-2.0mm
Name: NT01-2.0mm
Offset: 6 mm
Is Pneumatic
Open at Break
Image: C:\Users\ \Desktop\UNE 40413 Nail Tear Pict
Apply
OK
Cancel




TestWise Options
General
Graph
Jaws
Jaw Schemes
Load Cells
TestWise Settings
Titan Settings
Titles
Users
Manual
Firmware
Configure individual jaw settings
New
Delete
AF Clamp
AF Wire
CP156 Bottom
CP156 Top
EN388 Clamp
EN388 Probe
HA Clamp
LB1
NT01-1.5mm
NT01-2.0mm
NT01-3.0mm
Name: NT01-3.0mm
Offset: 11 mm
Is Pneumatic
Open at Break
Image: C:\Users\ \Desktop\UNE 40413 Nail Tear Pict
Apply
OK
Cancel


TestWise Options
General
Graph
Jaws
Jaw Schemes
Load Cells
TestWise Settings
Titan Settings
Titles
Users
Manual
Firmware
Configure individual jaw settings
New
Delete
AF Clamp
AF Wire
CP156 Bottom
CP156 Top
EN388 Clamp
EN388 Probe
HA Clamp
LB1
NT01-1.5mm
NT01-2.0mm
NT01-3.0mm
NT01-6.0mm
Name: NT01-6.0mm
Offset: 18 mm
Is Pneumatic
Open at Break
Image: C:\Users\ \Desktop\UNE 40413 Nail Tear Pict
Apply
OK
Cancel



James Heal
Extraordinary Testing Solutions

FAQ

Setting Up the Jaw Schemes in TestWise

During this step, we will setup four (4) different Jaw Schemes, one (1) for each of the different nail diameters in combination with T27.

In the previous step the Jaws were created, we will uses the Jaws to create new Jaw Schemes.

In TestWise, goto the File menu and click on Options, then Jaw Scheme, then New.

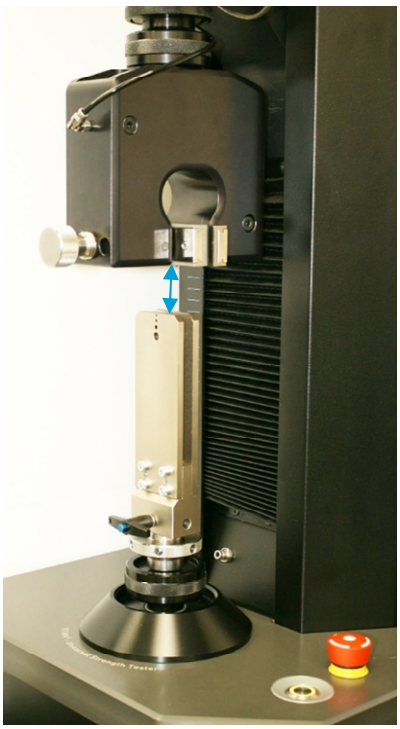
For each of the four (4) Jaw Schemes, enter the details as shown on the following two (2) pages.

After each Jaw Scheme is created, click the Apply button, then repeat until all four are completed.

For each Jaw Scheme, enter the following details, and see the following two (2) pages for examples:

- Name
- Description
- Reference Position
- Note: Custom Offset and Load Separation are always zero
- Select the Top Jaw from the dropdown list – this will be the same for the four Jaw Schemes (e.g., T27)
- Select the Bottom Jaw from the dropdown list – this will be each of the NT01 Jaws in turn
- Select the Mode of Operation from the dropdown list – this will be Tension in all four cases
- After each Jaw Scheme is created, click the Apply button and the repeat until all four Jaw Schemes have been created.
- After the fourth (4^{th}) Jaw Scheme has been created, also click the OK button, and the Options window will close.
- See the next two (2) pages for screenshot examples.

The Jaw Schemes have now been created and are ready to use.



Connect a suitable loadcell to Titan5, typically a 200 N loadcell will be satisfactory.

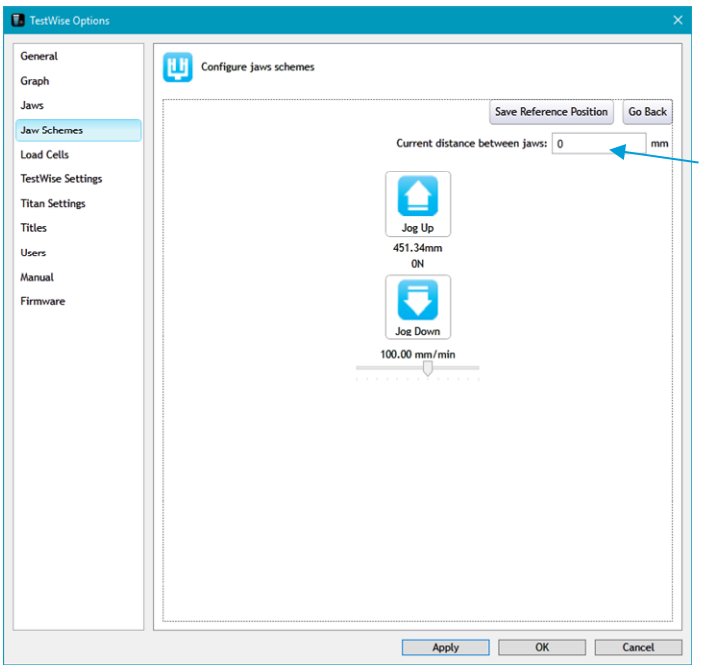
Connect a single T27 Pneumatic Grip to the loadcell.

Use full width rubber jaw faces.

Connect the fixture as shown to the left using the adaptor.

Manually move the top T27 Grip to within 50 – 100 mm of the top edge of the fixture.

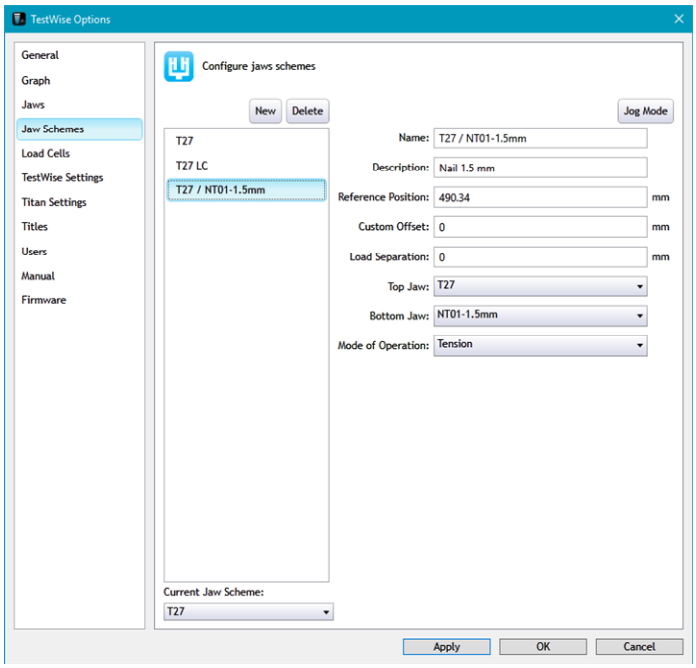
Now, accurately measure the distance between the bottom of the T27 Jaw Face and the top of the Nail Tear fixture.

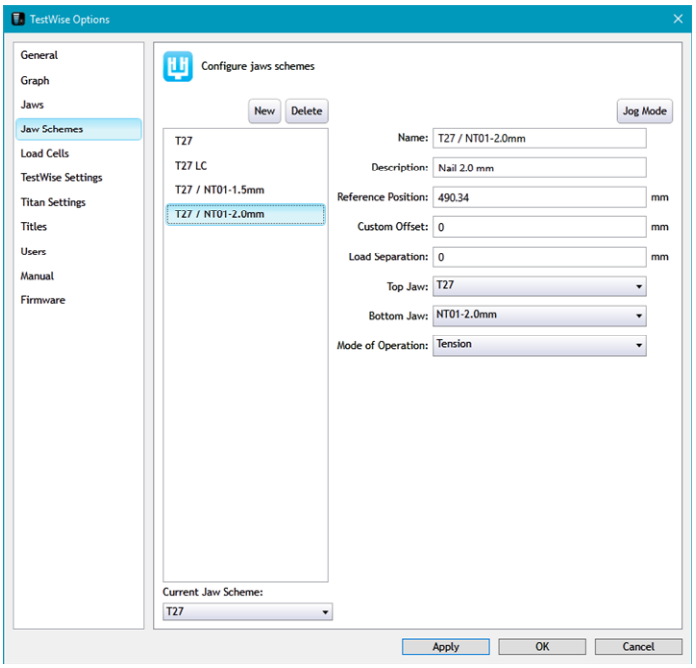


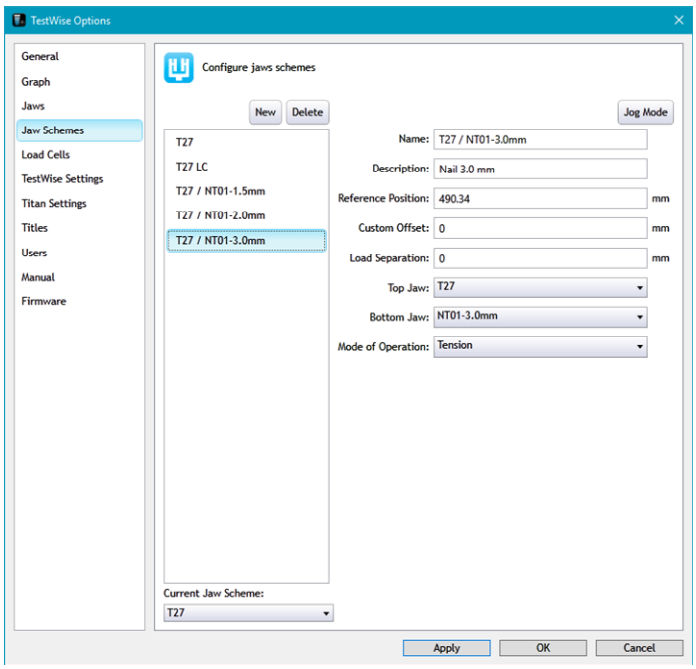
Type the measured distance (e.g., 52.0) into the box named "Current distance between jaws" and then click the Save Reference Position button.

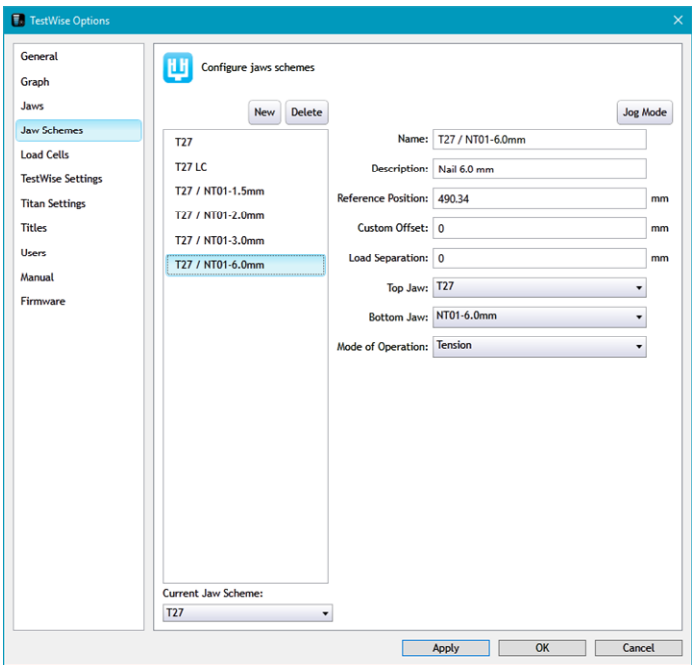
You will automatically be taken back to the create Jaw Scheme window and the Reference Position box will be populated with a number (e.g., 490.34).

Note this number and use it to save time by typing in when creating the other Jaw Schemes.


TestWise Options
General
Graph
Jaws
Jaw Schemes
Load Cells
TestWise Settings
Titan Settings
Titles
Users
Manual
Firmware
Configure jaws schemes
New
Delete
Jog Mode
T27
T27 LC
T27 / NT01-1.5mm
Name: T27 / NT01-1.5mm
Description: Nail 1.5 mm
Reference Position: 490.34 mm
Custom Offset: 0 mm
Load Separation: 0 mm
Top Jaw: T27
Bottom Jaw: NT01-1.5mm
Mode of Operation: Tension
Current Jaw Scheme:
T27
Apply
OK
Cancel


TestWise Options
General
Graph
Jaws
Jaw Schemes
Load Cells
TestWise Settings
Titan Settings
Titles
Users
Manual
Firmware
Configure jaws schemes
New
Delete
Jog Mode
T27
T27 LC
T27 / NT01-1.5mm
T27 / NT01-2.0mm
Name: T27 / NT01-2.0mm
Description: Nail 2.0 mm
Reference Position: 490.34 mm
Custom Offset: 0 mm
Load Separation: 0 mm
Top Jaw: T27
Bottom Jaw: NT01-2.0mm
Mode of Operation: Tension
Current Jaw Scheme:
T27
Apply
OK
Cancel


TestWise Options
General
Graph
Jaws
Jaw Schemes
Load Cells
TestWise Settings
Titan Settings
Titles
Users
Manual
Firmware
Configure jaws schemes
New
Delete
Jog Mode
T27
T27 LC
T27 / NT01-1.5mm
T27 / NT01-2.0mm
T27 / NT01-3.0mm
Name: T27 / NT01-3.0mm
Description: Nail 3.0 mm
Reference Position: 490.34 mm
Custom Offset: 0 mm
Load Separation: 0 mm
Top Jaw: T27
Bottom Jaw: NT01-3.0mm
Mode of Operation: Tension
Current Jaw Scheme:
T27
Apply
OK
Cancel

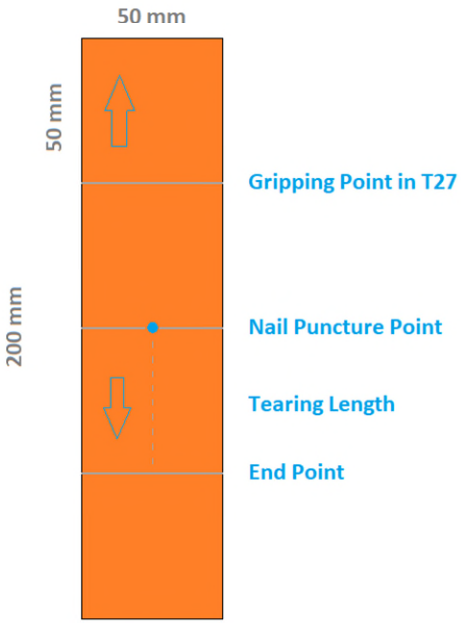

TestWise Options
General
Graph
Jaws
Jaw Schemes
Load Cells
TestWise Settings
Titan Settings
Titles
Users
Manual
Firmware
Configure jaws schemes
New
Delete
Jog Mode
T27
T27 LC
T27 / NT01-1.5mm
T27 / NT01-2.0mm
T27 / NT01-3.0mm
T27 / NT01-6.0mm
Name: T27 / NT01-6.0mm
Description: Nail 6.0 mm
Reference Position: 490.34 mm
Custom Offset: 0 mm
Load Separation: 0 mm
Top Jaw: T27
Bottom Jaw: NT01-6.0mm
Mode of Operation: Tension
Current Jaw Scheme:
T27
Apply
OK
Cancel

UNE 40413 Specimen

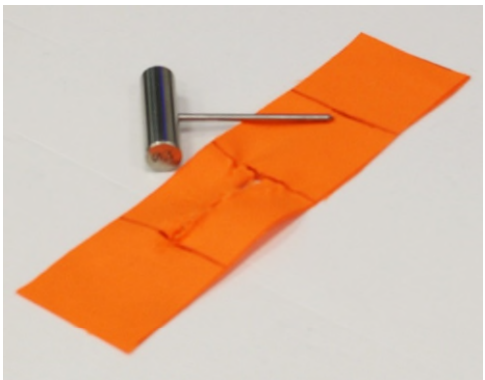
Here is a schematic representation showing the dimensions and features. Typically, five specimens in each direction are prepared.

To aid positioning of the specimen in the top grip and the Nail Tear fixture, it is practical sense to mark the specimens in four sections as shown in the pictures below.

It is the direction which is parallel to the narrow 50mm side which dictates the test direction, and, for the example of woven fabrics, we say "tearing across warp" or "tearing across weft".



Specimen Preparation

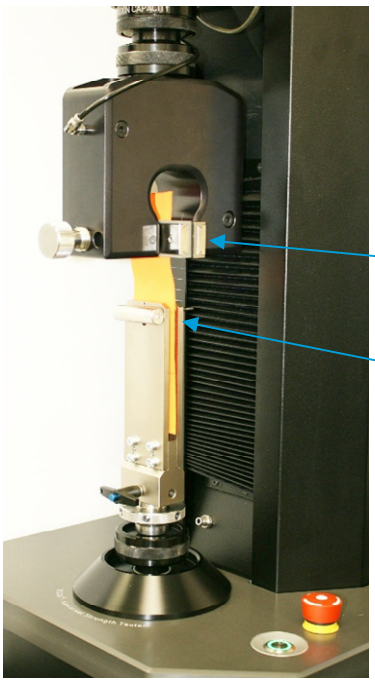


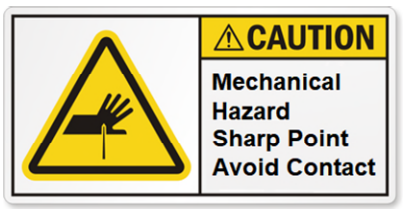
Tested Specimen

Loading the Test Specimens

This procedure requires care and attention as it uses sharp points (the "Nails"). You should carry out your own risk assessment in order to determine any Personal Protective Equipment (PPE) required.

When pushing the Nails through the Fabric and Fixture, keep fingers clear of the back of the Fixture as once the Nail penetrates the specimen it tends to move quickly out of the Fixture, at the back where visibility is restricted.





Using both hands to position the specimen centrally and vertically, clamp the specimen in the top T27 Grip using the Foot Pedal.

With the specimen secured, place the Nail into the appropriate hole and push through the specimen and out through the rear hole of the Fixture.

Start the test by clicking Run on the screen or by pressing the Titan Multifunction Button.

The top T27 Grip moves upwards causing the Nail to tear through the specimen.

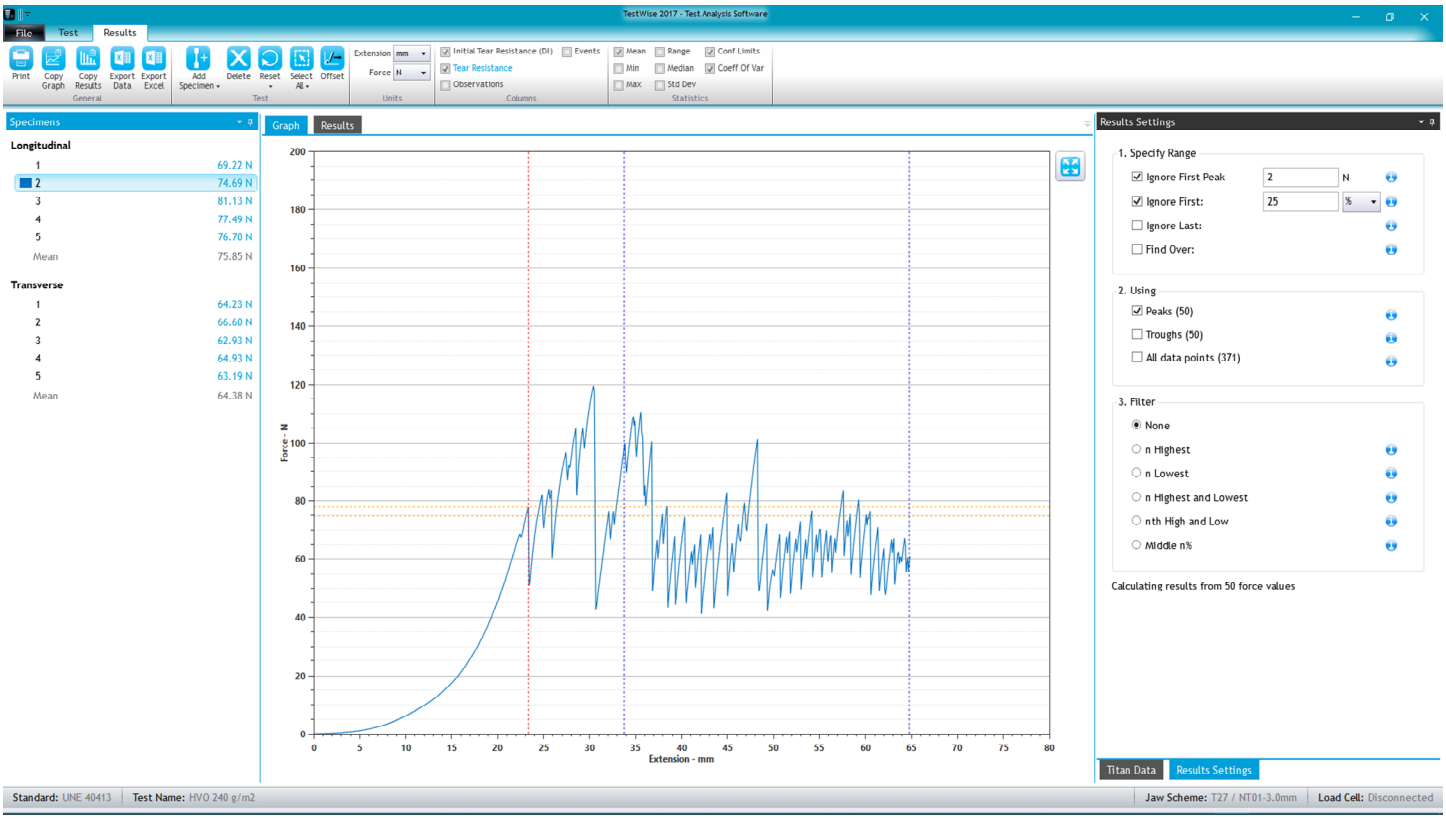
The test is terminated manually by the Operator.

When the tearing reaches the 50mm mark, press the F12 on the keyboard or press the Titan Multifunction Button.

Carefully remove the Nail and then the specimen.

TestWise Test Screen

Here is an example of a peak trace from the Nail Tear Resistance test.



For more details of TestWise for UNE 40413 please view the video which came with this package.

http://appsupport.james-heal.co.uk/support/home