James Heal
Setting the Standard

OPERATOR'S GUIDE

AirPro

Air Permeability Tester
Model 2135

Covering Serial Numbers

2135/22/1000 and upwards.

James Heal
Halifax, England

Publication 290-2135-1$D

Published by:

PPT GROUP
Trading as JAMES HEAL
RICHMOND WORKS
HALIFAX
WEST YORKSHIRE
HX3 6EP
ENGLAND

TELEPHONE +44 (0) 1422 366355

E-mail Halifaxinformation@pptgroup.com

Internet http://www.james-heal.co.uk

TABLE OF CONTENTS

JAMES HEAL

At James Heal, we are dedicated to designing and developing high precision testing instruments and test materials for physical and colour fastness testing. Our worldwide Service and Calibration division and expert technical assistance complement our product range, adding real value to your laboratory testing activities.

Setting the Standard

We are committed to forming close relationships and have established numerous partnerships within the textile industry, from trade and standards organizations, to test houses, customers and distribution partners.

With a heritage spanning 150 years, we have evolved and grown through a culture of continuous improvement, resulting in a thorough understanding of the applications, operating conditions and requirements of customers worldwide – from independent testing laboratories and test houses, to fabric suppliers, manufacturers and retailers.

Using knowledge and expertise, we consistently set the industry standard through product innovation and technology, with customer and user needs, present and future, driving our technological advancements. You can be assured that with James Heal, you will always receive the highest levels of product quality and customer service. We have Agents and Distribution partners all over the globe, ensuring locally available product whenever, and wherever you need it.

A Global Company

James Heal is part of the Physical Properties Testers (PPT) Group, a multi-national holding company.

James Heal is an international company with group headquarters in the United Kingdom. We also have a North American headquarters in Sterling, Virginia.

Additionally, James Heal is represented by a global network of exclusive distributors in over 50 countries, providing customers with local technical expertise, training, application and after-sales support.

James Heal are a truly international business, with established, long term relationships with agents and distributors the world over. Our partners have important values in common with James Heal, and hold the same commitment to quality and customer focus. As indispensable intermediaries, our partners are vital in ensuring the expectations of customers are exceeded, regardless of their home market.

Our global partners provide critical assurance to customers that they can expect all our premium products and services to be complemented with the necessary local support required for an excellent overall service.

Areas of Expertise

Textile: Colour Fastness

- Chlorinated Water
- Dry Cleaning
- Dry Heat
- Hot Pressing
- Laundering
- Light & Weathering
- Perspiration
- Phenolic Yellowing
- Print Durability
- Rubbing
- Washing
- Water

Textile: Physical

- Abrasion
- Bursting Strength
- Compression and Puncture
- Crease and Wrinkle Recovery
- Crimp
- Drape
- Durability
- Flammability
- Mass per unit area
- Pilling and Fuzzing
- Drying Rate
- AquAbrasion (wet abrasion)
- Air Permeability
- Security of Attachments
- Seam Slippage
- Shrinkage
- Snagging
- Spray Rating
- Stretch and Recovery
- Surface Deterioration
- Tear Strength
- Tensile Strength
- Washing and Drying
- Wicking
- Bundesmann
- Hydrostatic Head

Non-Textile

- Bursting strength of nonwovens, plastics, and medical products
- Micro-scratching of laminates, wooden, painted, automotive and high gloss surfaces
- Physical and colour fastness testing of leather
- Rubbing fastness of laminates and wooden surfaces
- Tear strength of paper and plastic

INTRODUCTION

AirPro

Please read this operators guide before commencing installation and use of the AirPro instrument.

Features & Benefits

- 7 inch, wide viewing angle touch screen
- 2022 TestWise Touch
- Quick change test areas
- Automatic lower test area detection
- Inbuilt test head storage drawer
- Specified ‘damp’ test compatible
- Digital sensor arrangement

Service & Calibration

- Worldwide Service
- ISO 17025 based calibration service
- 18 Months’ Warranty

Technical Assistance

- Operator training
- Knowledge transfer
- Applications support
- Engineering support

Standards

- ASTM D737-2018
- BS 5636:1990, BS 3424-16:1995 – part 16: Method 18, BS 6F 100
- DIN 53887-1986
- EN ISO 9237:1995
- GB/T 5453
- IS 15891-15
- JIS L 1096:2010 - part 8.26
- NWSP 70.1 and EN ISO 9073-15:2008
- SANS 5265

GENERAL INFORMATION

Manufactured by:

James Heal™

Richmond Works
Lake View
Halifax
HX3 6EP
United Kingdom

Telephone No: 01422 366355

This manual is valid for the James Heal™ AirPro, Air Permeability Tester.

This manual covers the operation and day to day maintenance for the James Heal™ AirPro, Air Permeability Tester. It has been written and illustrated using the best possible information at the time of publication. The manual should be regarded as part of the equipment and should be kept with it throughout its working life.

Any difference between the manual and the equipment reflect improvements introduced after the publication of the manual. Any amendments will be recorded below and incorporated in the relevant part of the manual.

Changes, technical inaccuracies and typographical errors will be corrected in subsequent revisions. Please contact the Applications Team if you have any queries or comments.

As part of our policy for continuous product development and improvement,
James Heal™ reserves the right to make changes in design and specification without notice.

Document Revision History

See front cover for Publication number, e.g., 290-2135-1$A

Revision	Date	Originator	Details of Revision
A	05/05/2021	AC	Operator's Guide Created
B	03/03/2022	PG	First Publication
C	04/03/2022	PG	Risk Assessment (Warnings) and Test Areas
D	30/01/2023	PG	The name "Adidas" removed from document

GENERAL DESCRIPTION AND USE OF EQUIPMENT

AirPro is a test instrument which can be used to perform analysis on the air permeability of textile fabrics and other similar materials.

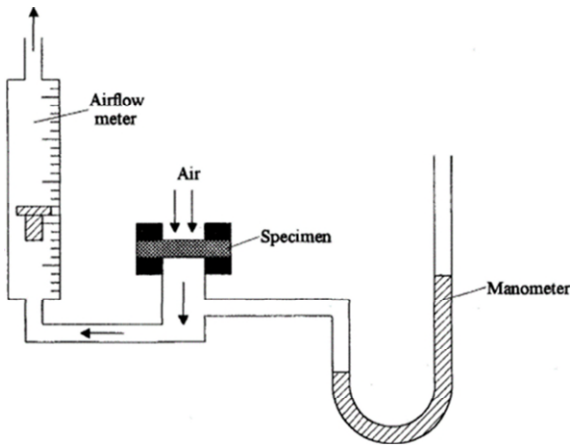
Warning: The equipment must not be used for any purpose other than for that which it was intended.

Definition of Air Permeability

Velocity of an air flow passing perpendicularly through a test specimen under a prescribed air pressure differential over a certain time period [ISO 9237].

The rate of air flow passing perpendicular through a known area under a prescribed air pressure differential between the two surfaces of a material [ASTM D737].

In many articles on air permeability you will see this diagram which is used to explain the principle of the test.



The airflow through a given area of fabric is measured at a constant pressure drop (or vacuum) of 100 Pa, for example.

The specimen is clamped over the air inlet of the apparatus with the use of rubber gaskets and air is sucked through it by means of a pump or fan.

The air valve is adjusted to give a pressure drop across the fabric of 100 Pa and the air flow is then measured using a flowmeter.

SAFETY AND ENVIRONMENTAL PROTECTION

Note: All operators and customer maintenance personnel should familiarise themselves with this manual before using or servicing the equipment.

Safety Summary

Water – Warning
AirPro is primarily designed to work with dry test specimens, however, wet or more accurately “damp” specimens can also be tested. In this case the wetting process shall be carried out away from the AirPro and the specimens shall only be presented to AirPro after the removal of excess water. Wet specimens which are saturated with water and may be dripping shall not be presented to AirPro. See the section “Test on damp (wet) test specimens” for details.

Electric Shock – Warning
No access to the internal workings of the AirPro by operators, only by trained and qualified personnel. If users see exposed or damaged power cables do not use or touch the instrument and immediately seek technical assistance.

Mains switch is located on the rear panel of the instrument.

Access – Warning
Do not allow general access to AirPro only to those competent and trained personnel. AirPro should be stored in a controlled environment where only authorised personnel have access.

Manual Handling – Warning
Avoid lifting or moving the test equipment without relevant manual handling training.

Warranty – Warning
Do not attempt to gain access to the internal workings of the **AirPro**, if tampered with this will invalidate the instrument warranty.

Note: The equipment must only be operated in an environment with adequate lighting with no shadow or stroboscopic effects.

Safety Precautions

Warning
Always observe the following safety precautions.

Ensure electrical outlet is dedicated (no other equipment on the same circuit breaker).

Only the voltage indicated on the unit.

Serial No / Rating Plate is connected to the unit.

It is recommended that the mains electrical isolation switch be lockable and located in a visible position.

Do not operate instrument with a damaged power cord until it has been examined and repaired by an authorised service representative.

Ensure power cord is protected from contact with hot surfaces.

The power cord must not be subject to foot or machine traffic and must not be placed on the floor without adequate protection.

Always have electrical box covers in place when instrument is plugged in and the mains isolator switch is ON.

Do not use an extension cord.

Do not defeat or bypass any built-in equipment safety features.

Any maintenance, servicing or adjustments must only be carried out by suitably skilled or properly instructed/supervised personnel.

Operator Safety

Water – Warning
AirPro is primarily designed to work with dry test specimens, however, wet or more accurately “damp” specimens can also be tested. In this case the wetting process shall be carried out away from the AirPro and the specimens shall only be presented to AirPro after the removal of excess water. Wet specimens which are saturated with water and may be dripping shall not be presented to AirPro.
See the section “Test on damp (wet) test specimens” for details.

Warning

Depending on the installation and operating conditions, a sound pressure level greater than 80 dB(A) may arise!

1. Take appropriate technical safety measures.
2. Protect operating personnel with appropriate safety equipment, e.g. hearing protection.
3. Wear appropriate Personal Protective Equipment (PPE) when operating the instrument, performing regular testing tasks, and performing maintenance.

Warning

Hair and clothing can be pulled into the instrument or caught and wound up moving parts!

Danger due to vacuum and gauge pressure: sudden escape of air & debris (skin and eye injuries), sudden drawing of hair and clothing.

Do not wear long loose hair or wide loose clothes or loose jewellery while working near the instrument. Wear a hair net.

Warning
Always isolate from the electrical supply before carrying out authorised maintenance work on the machine.

Access to the main electrical power isolator must not be obstructed.

The area around the machine should be kept clean, dry and clear of any waste material.

Any maintenance, servicing or adjustments must only be carried out by suitably skilled or properly instructed / supervised personnel.

Warning
Risk of crush injury to Operator's fingers and hands whilst machine arm is being lowered and raised – rear part of arm near instrument body.

Risk of crush injury to Operator's fingers and hands whilst machine arm is being lowered and raised – Fabric Clamp (test head).

Customer Responsibilities

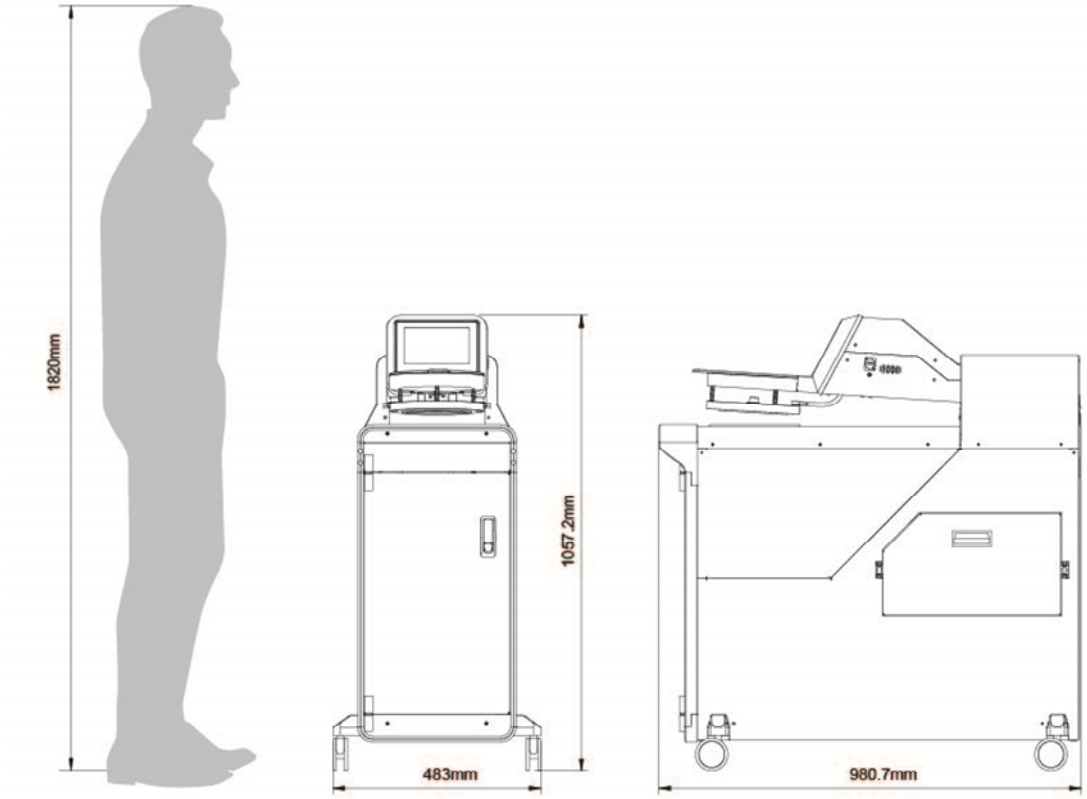
Cleaning & Maintenance

Cleaning and maintenance should only be carried by trained/competent personnel.

More details on page 22.

INSTRUMENT SPECIFICATION

	James Heal™ AirPro
Machine Only W x D x H (mm / inches) Weight (kg / lbs)	W 483 x D 980.7 x H 1057.2mm W 19 x D 41.6 x H 17.62” 100 kg / 220 lbs - *Excludes test heads.*
Electrical Requirements	Voltage: 120/240V Frequency: 50/60Hz Current: 10A @120V; 5A @240V



PRE-INSTALLATION

Preinstall Checklist

The AirPro is a heavy test instrument. Due to the dependence on the instruments precise test results care needs to be taken when installation takes place, preventing damage or compromise of the standardised test instrument, which could result in invalid results.

The final location of the AirPro has a weight bearing capacity of at least 120 kg (265 lbs).

Customer Responsibilities

The James Heal™ AirPro instrument and its accessories will usually be shipped in one crate, if ordered as a standalone instrument. The contents of which will need transporting to the install site by James Heal or associated agent.

James Heal or associated agent will install this instrument, we advise all installers to be familiar with the Safe Working Procedure Document of the AirPro before commencing installation.

Prior to installation check content of delivery using with reference to the section “Unpacking”.

General responsibilities include:

Providing James Heal with delivery instructions.

Have the necessary equipment and/or personnel for unloading the delivery vehicle and moving the equipment to its final site.

Prepare the installation site prior to the arrival of the instrument.

Delivery

Handling Equipment

Provide the necessary equipment, such as a genie lift or forklift truck for unloading the unit.

Genie Lift

Fork Lift Truck

Personnel
Provide personnel for unloading, unpacking and transferring the equipment.

Clearance
Check the delivery route and remove all obstructions.

Unit
Minimum width: 483mm
Minimum height: 1057.2mm
Minimum Depth: 980.7mm

Minimum weight: 100kg

General Planning

Electrician
Have a qualified electrician available to provide the necessary electrical wall outlets, prior to installation.

Area Planning

Room Layout
Provide adequate space for installing and operating the equipment. A minimum of 1000mm/39.4” in front of the machine is recommended.

Work Surface
Provide a stain and chemical resistant work surface for ease of cleaning.

Work Surface Level
The floor and work surface should be flat and level in both directions.

Work Surface Load-Bearing Capacity
The work surface must be capable of supporting the operating weight of the equipment.

Electrical

Note: The electrical installation should conform to the codes and requirements of the country or locality in which the equipment is to be installed.

Electrical Specifications

Voltage: 120-240V
Frequency: 50/60Hz
Current: 10A @120V; 5A @240V

Electrical Power Cord

The equipment is provided with a 2 metre long electrical power cord for EURO, US and UK mains connection.

Environment for testing

As with all physical testing, tests should be carried out in a standard atmosphere for testing textiles, for example, 20°C and 65% RH. However, the instrument will operate satisfactorily providing temperature and humidity levels are relatively stable. The humidity conditions must be non-condensing. The surrounding area should be electrically and magnetically stable.

The importance of constant temperature

Because air and other gases are compressible, volumetric flow rate will change with both pressure and temperature. More distance between molecules means less mass in a given volume. If mass flow is kept constant, and temperature increases, volume flow increases to pass the same amount of mass (molecules) across the sensor.

INSTALLATION

Receiving Inspection

Your James Heal™ AirPro was carefully inspected and tested prior to shipment. Upon arrival, inspect the crate for damage. Unpack the instrument as soon as possible and conduct a thorough examination of the unit and its components. Do this in the presence of the carrier if possible. If damage is noted, take photographs of the damaged portions and immediately file a claim with the carrier.

NOTE: If the carrier is not notified within 48 hours of delivery, they cannot be held responsible.

Warning
Personal Protective Equipment must be worn.
Wear safety shoes, safety glasses and protective gloves when unpacking the equipment.
Beware of sharp edges, splinters, pinch points, exposed nails and staples.
Gloves complying with EN 388:2016+A1:2018 with marking 4442CX are recommended.

Unpacking

Unpacking Checklist

List of components/assemblies that will be delivered:

Stock Code	Item name	Quantity
905-350	AirPro	1
	Standard Accessories 1 x Mains Lead Set Straight 1 x AirPro Check Plate	

Optional Accessories

At least one (1) test head is required:

Test Areas

Group part code	Lower part code	Upper part code	Area of test (cm^2)	Diameter of test (mm)	Diameter of test (inch)	Actual Area of test (cm^2)	Actual Area of test ($inch^2$)
735-008	551-544	551-543	100	114.2	4.496	100.026	15.504
735-007	551-695	551-688	50	81.1	3.193	49.955	7.743
TBA	TBA	TBA	38.3	71.1	2.799	38.300	5.937
735-006	551-696	551-689	38.0	TBA	TBA	37.994	5.889
735-005	551-697	551-690	25	57.7	2.272	24.985	3.873
735-004	551-698	551-691	20	51.7	2.035	19.991	3.097
735-003	551-699	551-692	10	37	1.46	10.010	1.552
735-002	551-700	551-693	6.45	30.2	1.189	6.446	0.999
735-001	551-701	551-694	5	26.6	1.047	4.995	0.774

Spare Parts Kit (optional)

Spares	Stock code
AirPro Filter AirPro 2-year Spares Kit Comprising: 2 x O'Ring I.D. 133.07 x 1.78mm 1 O'Ring I.D. 90 x 1.5mm 1 x AirPro Filter 2 x Fuse 10A AntiSurge	2135-SPARES

Moving the Instrument

Warning
Personal Protective Equipment must be worn.
Wear safety shoes, safety glasses and protective gloves when moving the equipment.
Gloves complying with EN 388:2016+A1:2018 with marking 4442CX are recommended.

The equipment is heavy. Use sufficient lifting devices for its movement. Provide the necessary equipment, taking note of the centre of gravity to ensure the lift is completed in a safe manner. See Handling Equipment on page 14.

Provide adequate space for installing and operating the equipment.

The floor and work surface must be flat and level and capable of supporting the operating weight of the equipment.

Installation Procedure

Ensure the AirPro is placed in an appropriate are for safe use of the instrument, be mindful of trailing power cables.

Connections Preparation

Electrical

- Stand the instrument on a firm and level surface.
- Connect the electrical power supply to the mains input using the lead provided.

The power rating for AirPro is:

- Voltage: 120-240V
- Frequency: 50/60Hz
- Current: 10A @120V; 5A @240V

PRODUCT OVERVIEW

External Instrument Components

Front View

Note: the Sensor port is not enabled but is included for future development.

Rear View

Note: the Ethernet port is not enabled but is included for future development.

Internal Components

Front View

Rear View

Not shown

CLEANING AND MAINTENANCE

The following section should be referred to for regular maintenance of the instrument, ensuring consistency and accuracy of tests.

Plenum Lint Filter

Inspection of the test area mesh should be completed on a daily basis to ensure there is no build-up of lint.

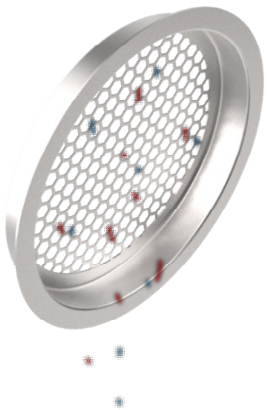
Remove upper and lower test area, exposing the lower plenum and lint filter.

Check the lint filter at the base of the plenum, if clear leave in place. If debris is visible remove to clean.

Use a flat head screwdriver if you cannot remove the lint filter by hand.

Ensure you do not drop anything down the air flow pipe when the lint filter is removed.

Clean off lint filter and return to instrument before performing further tests.



Moisture Drain

Disconnect the electrical supply from the instrument before accessing the moisture drain.

Remove the M5 bolt from the front panel.

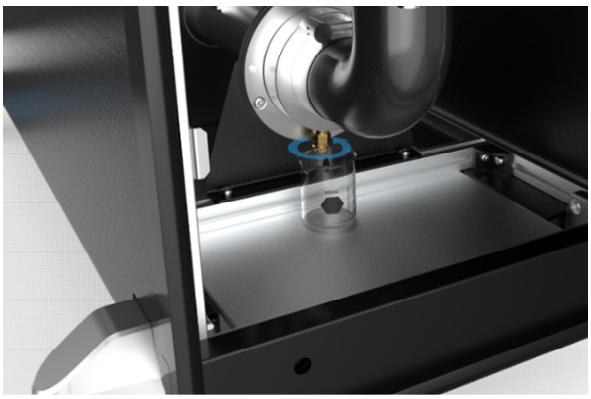
Lift the panel from the instrument and place in a safe location.

Pull from the handle on the panel, first outward so the top of the panel is exposed then lift upwards.

Identify the brass bleed valve at the base of the water trap. Place a small beaker or vessel beneath the valve.

Turn left to open, wait for any water to leave the valve.

Once any flow of water has stopped remove the vessel and dispose of the water.



Important: Re-tighten the bleed valve, to seal the system.

Moisture Filter

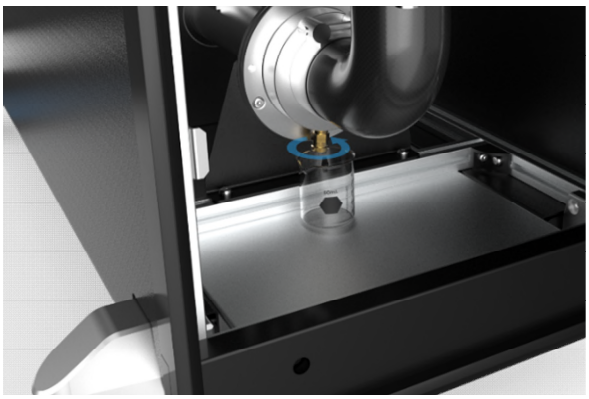
Disconnect the electrical supply from the instrument before accessing moisture drain.

Remove the M5 bolt from the front panel.

Lift the panel from the instrument and place in a safe location.

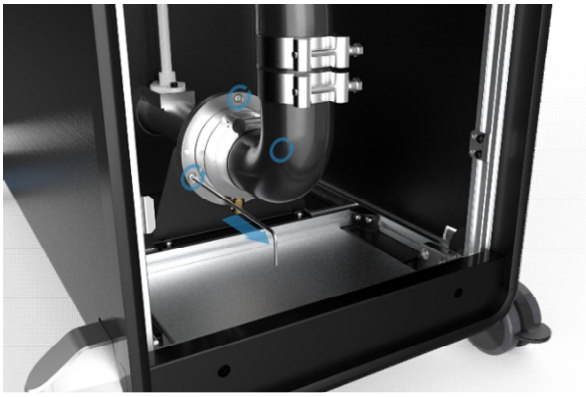
Pull from the handle on the panel, first outward so the top of the panel is exposed then lift upwards.

Remove/bleed any water from the water trap before proceeding, see above for detail.



Identify the water trap, remove the three (3) M5 bolts from the front of the water trap.

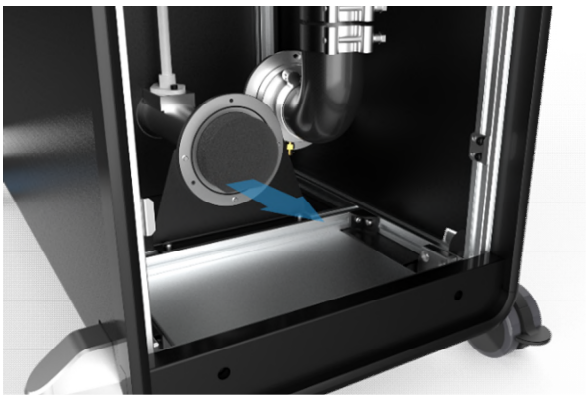
Note: Do not loosen the flexible air pipe.



Once the bolts are removed, flex the front of the moisture trap away from the back of the moisture trap.

Do not loosen any of the clamps on the main flow pipe when removing the filter.

There is an o-ring seal between the two plates of the water trap, ensure this remains in place on the front half of the water trap, containing the brass bleed valve.

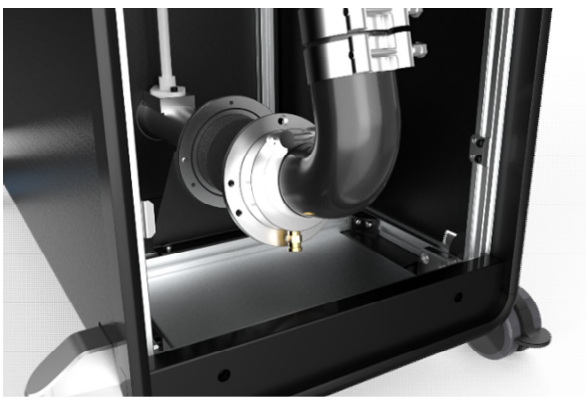


Remove the filter, this may remain in the front of the moisture trap if it is not visible.
Clean with water and dry if in good condition, replace with new filter if damaged.

Return the filter to the water trap body, ensure the flat face of the filter is aligned with the base of the water trap.

Again make sure the o-ring is in its recess and not disturbed. As without this the instrument may not seal and provide inaccurate results.

Insert and tighten the three (3) M5 bolts.



To ensure the instrument is sealed perform the Measurement Verification (on page 26) procedure using the Verification Check Plate provided with the instrument.
Ensure the instrument reads the same value on the touch screen in quick test as noted on the Verification Check Plate.

External Cleaning

Clean the housing and the touch screen with a slightly damp cloth and a mild detergent. The stainless steel parts can be cleaned with a suitable proprietary stainless steel cleaner following the manufacturer's instructions. Dry all parts with a soft dry cloth.

Microfibre cleaning cloths are suitable for removing the dust which may accumulate on the body of AirPro during use.

Important: do not use methylated spirit (denatured alcohol) or other solvents, abrasive cleaners, glass cleaners, general purpose cleaners, sodium hypochlorite or other chlorine containing products.

Note: The AirPro must **never** be hosed down with water.

Between Testing Sessions

Between testing sessions, cover the lower test plate with the rubber sheet provided with the instrument. This will help to prevent dust and debris from entering the vacuum system.

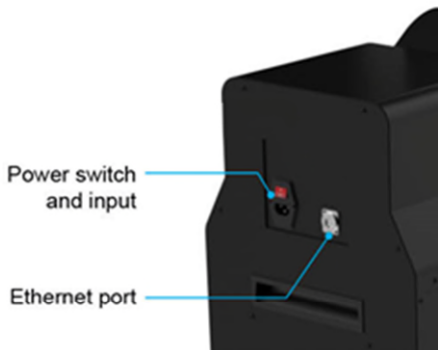
When not in use, always leave the clamping arm in the up position with the vacuum system off.

Between testing sessions the power consumption of the instrument is minimal and the touch screen may dim (if set) – touch the screen again to wake-up the instrument and restore the screen brightness.

AirPro Shutdown

The User Interface displayed on the touch screen is provided by a mini-PC which can be safely shutdown by switching off the electrical power supply to the instrument on the rear of the instrument (no special shutdown procedure is required).

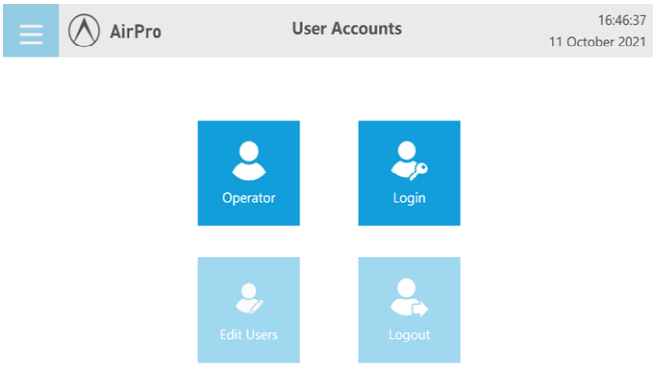
Rear View



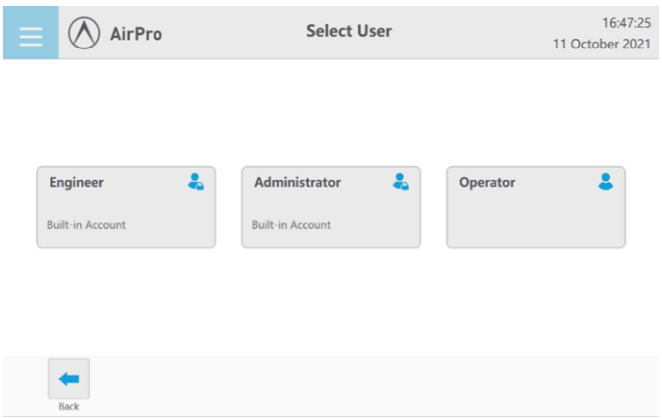
TESTWISE TOUCH 2022

User Creation and Management

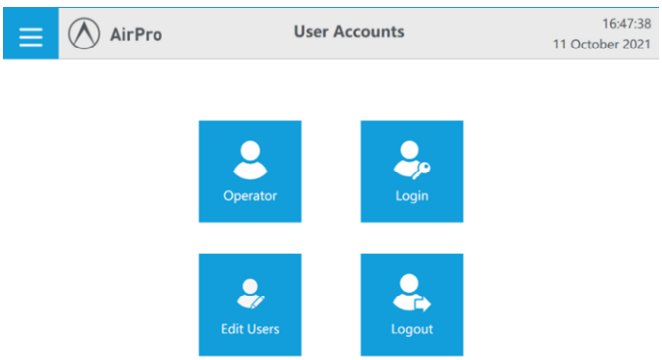
Administrators can create individual user profiles to be used on the instrument. Allowing users to own test results.



Login as administrator or engineer.



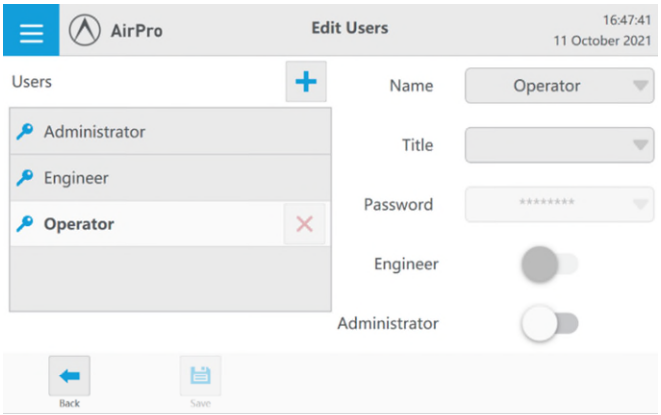
Select edit users.



To create a new users press the plus button.

To delete a user press the red X.

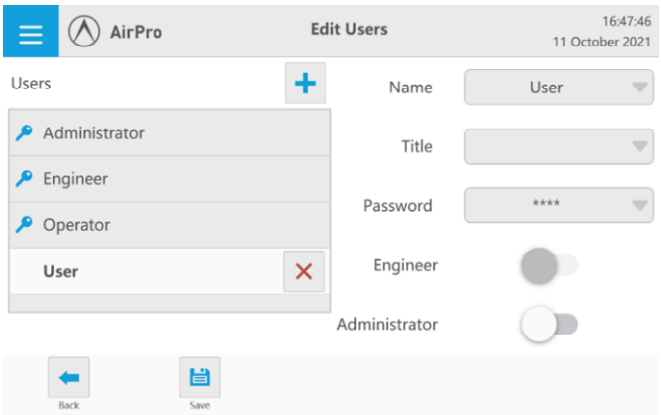
If you delete a user by mistake hit back and select no, so no changes are made.



Edit/Enter a new user name by selecting the user name button.

A keyboard with pop up to allow you to type a new name.

Select the tick button to confirm.

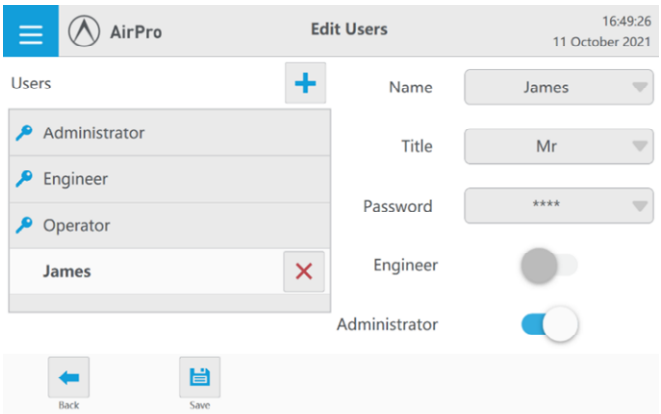


Add a title and a password to the user in the same way.

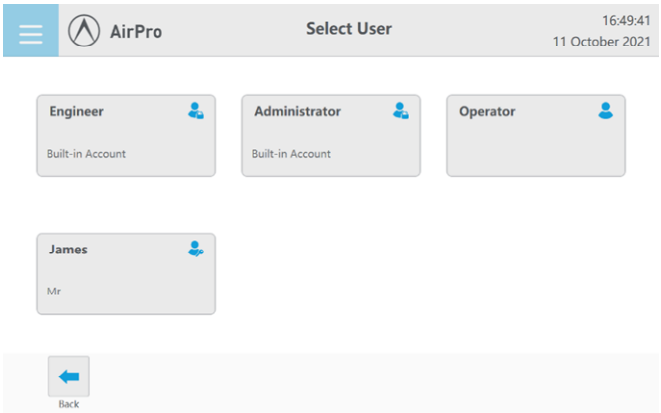
You can provide the new users with administrator permissions.
(See section on page 29 for user permissions.)

Select save to create new user. This will return you to the user account menu.

Log out.



Once logged out, select Login and select the new user, entre the password if you have set one for the new user.



User Permissions

Operator

Testing: Standards and Quick Test.
Test History: Management
Reports: Export and Customisation

Administrator

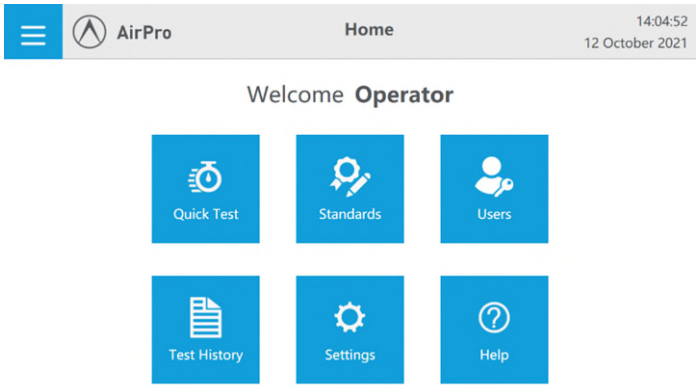
Testing: Standards and Quick Test
Standards: Management
Test History: Management
Reports: Export and Customisation
System: Management

Engineer

Calibration and Instrument Set Up
Plus management of all other features.

General Settings

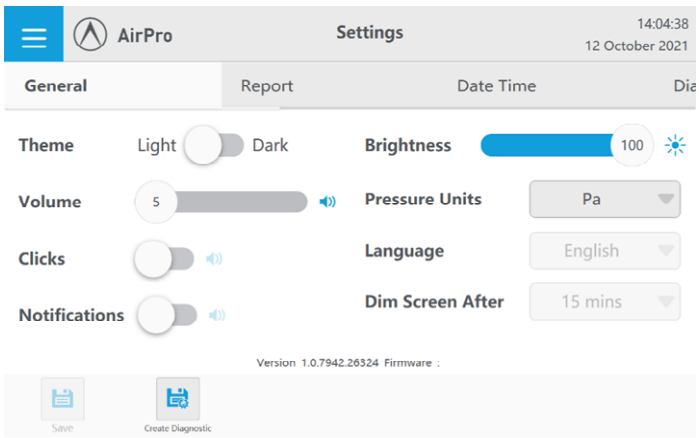
Login and select settings icon from the home screen.



In settings various system settings can be controlled. Not all users can access all setting menus.

Theme: Light and Dark
Volume: 5 – 100%
Sounds: clicks and notifications
Screen brightness: 10 – 100%
Default Test Pressure Unit

See your administrator to change the system language, screen dim time and date and time.

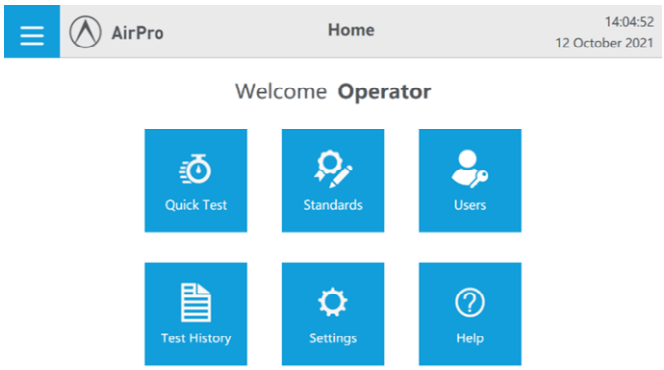


Report Editing

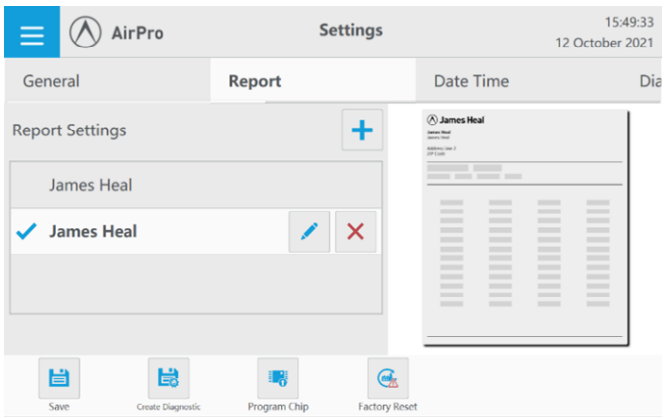
To create new report titles login as an Administrator.

Regular operators can edit existing report titles, but cannot create new ones.

Select Settings from the Home screen.

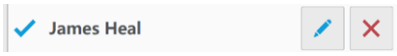


From the settings screen, select the Report tab on the menu bar.

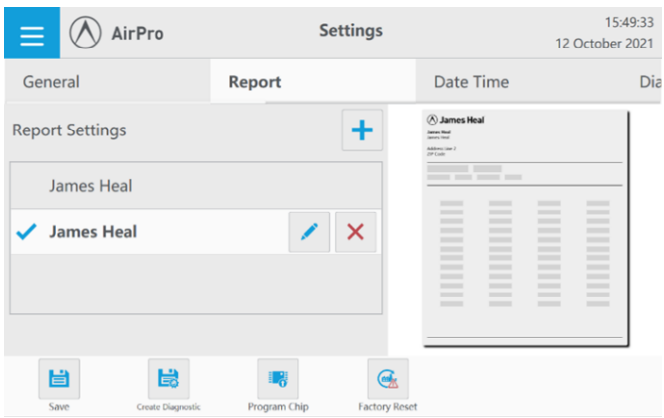


To create a custom report header for your PDF reports, select the plus (+) icon.

Select the copied report header, it will be highlighted with a blue tick.



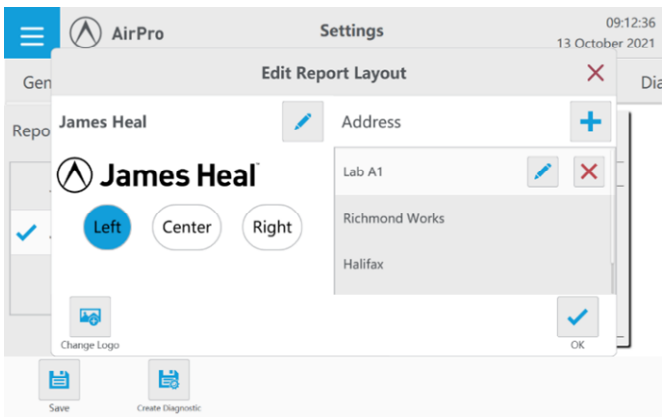
Select the pencil icon to edit the report header.



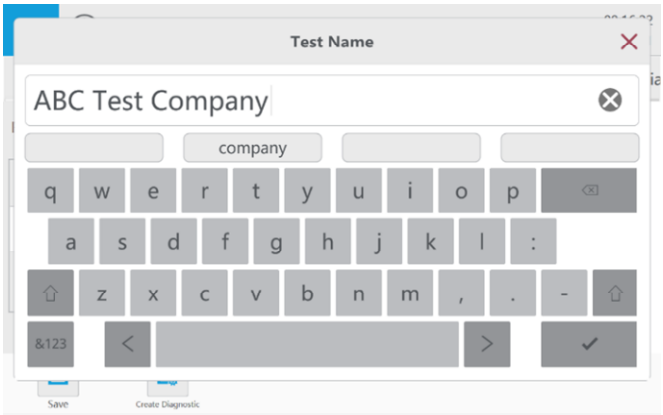
Here you can enter your company name or a customers.

Add a logo and align it.

Add multiple lines for address and contact details.



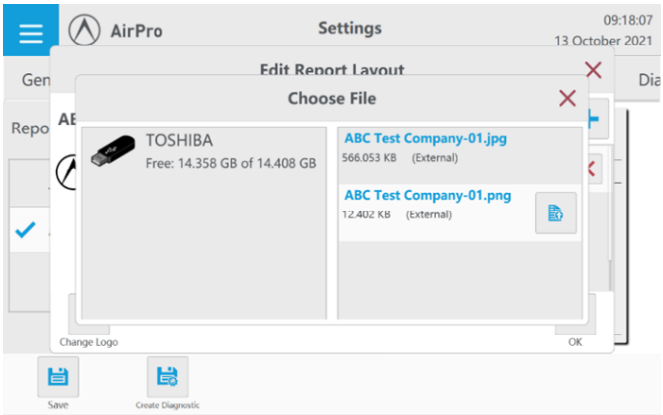
Select the pencil icon on the left hand side of the screen to edit the report title / company.



To change the header logo you will need your logo saved on a portable USB drive in JPG or PNG format.
Select the change logo icon.

Select your logo file and select the upload icon.

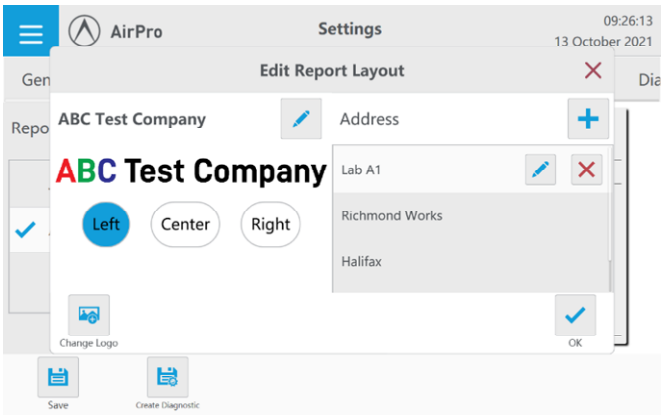
This will then display your uploaded logo on the report layout screen.



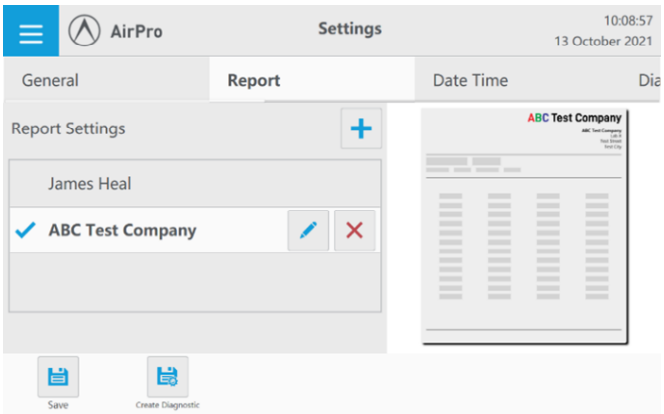
Add your address, contact or other useful details you would like to add to the header.

Select the plus button to add fields.

Then simply select the cross to delete or the pencil to edit.



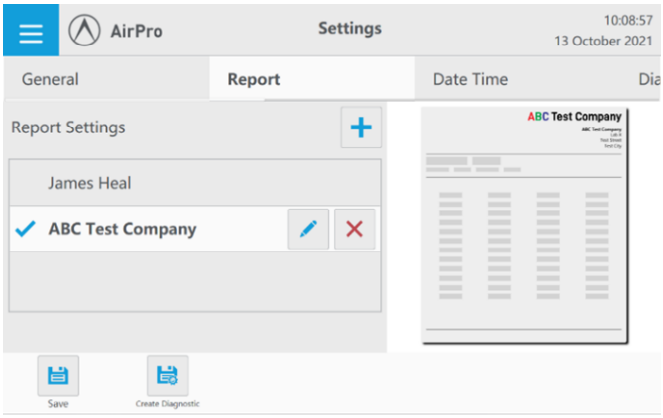
When you are happy with your customer header select ok, select the save button to save the custom report header.



To change between custom report headings, select settings and navigate to the custom report page.

The report selected will display a blue tick. To change, select another custom report header and then click save.

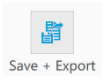
When you next export a PDF to a portable USB drive this will be your set header.

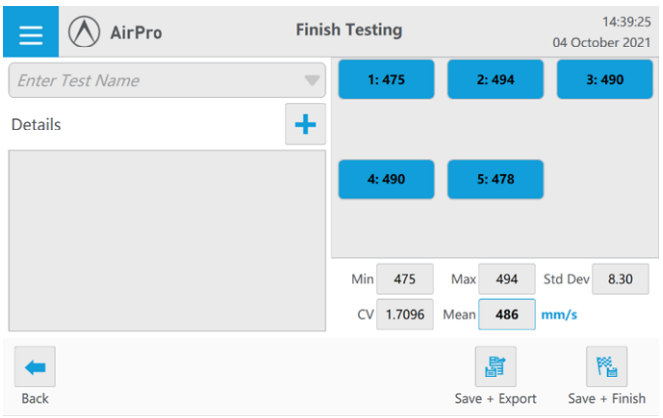


Exporting Results

You can export results to a USB in three file types: XML (AirPro backup file), XLSX (Excel) or PDF file formats.

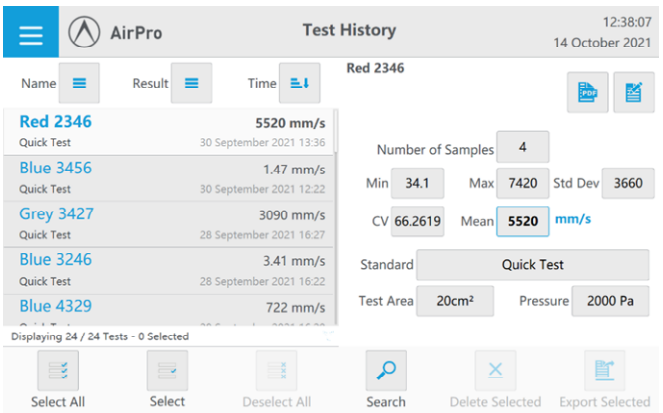
Export results at the end of a test or from the test history manager.





Test History

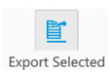
To quickly review select the test you would like to review.

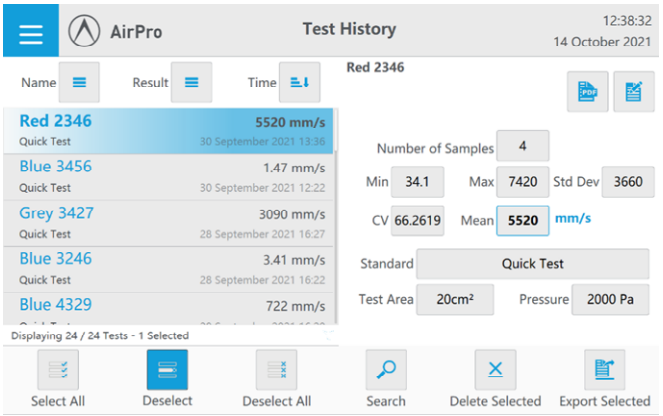


To select individual tests for export select and hold, the result will be highlighted blue.

For the selected test the results will be displayed on the right hand side.

Select export selected:



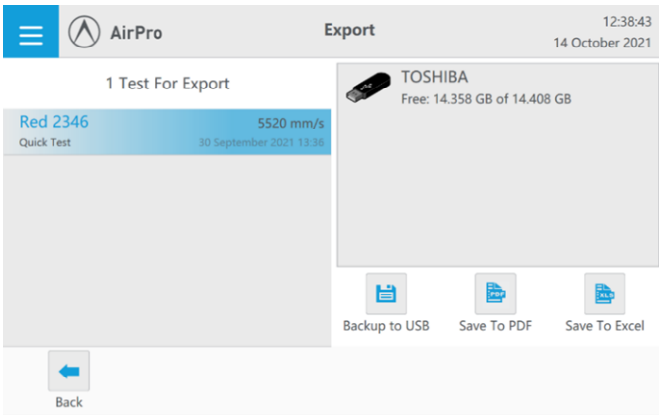


Select the USB device you would like to save to on in the right hand column.

You can backup the raw AirPro files to the USB.

Export the test report as a PDF.

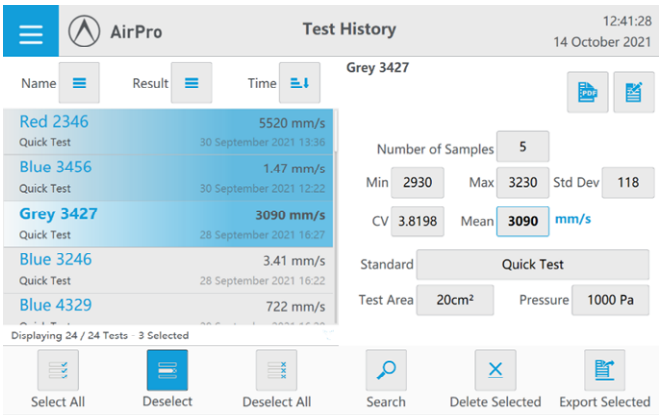
Export the results as an excel file.



You can select multiple tests for export at the same time.

Simply select and hold each test to highlight these and then select export selected.

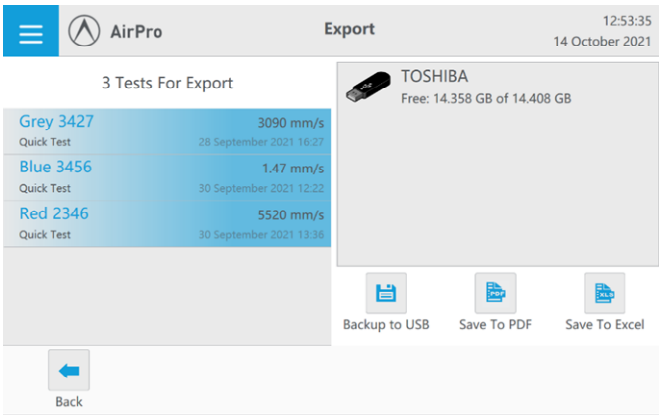
You can also search and block select searches. See test history search on page 14 for more detail.



Backup the raw AirPro files to the USB.

Export the test report as a PDF.

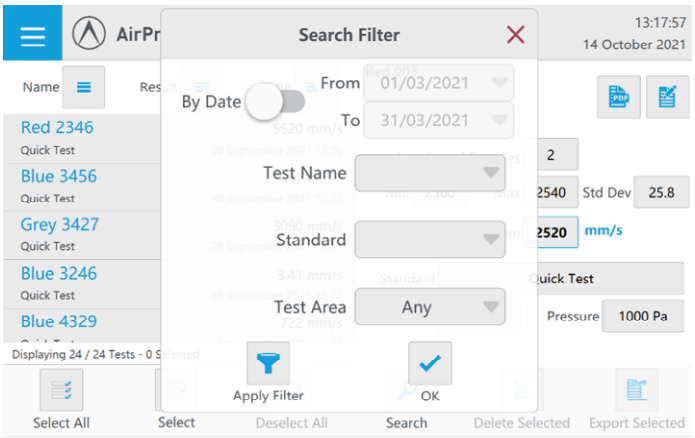
Export the results as an excel file.



Test History Management and Searches

Within the test history you may want to search for past results or to delete old results no longer needed on the AirPro.

Select the search icon to open the search filter.

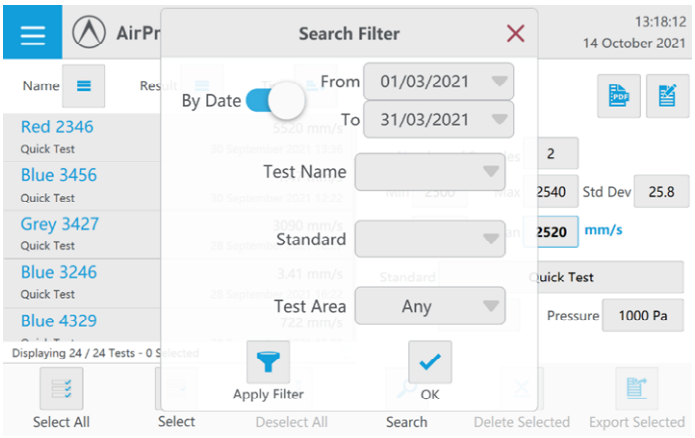


You can quickly filter and search a variety of ways.

Simply press the search button.

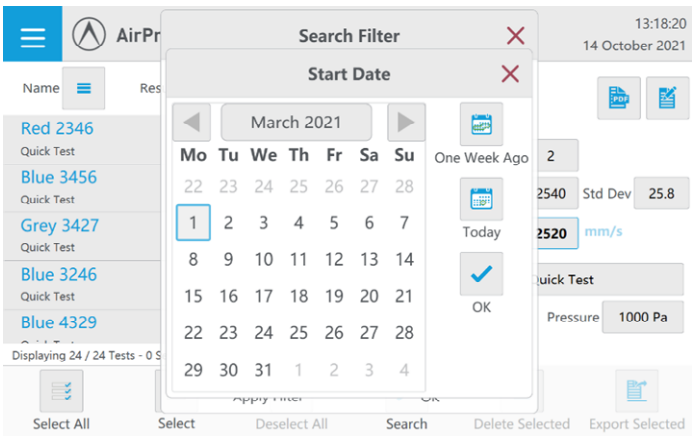
You can filter by:

- Date
- Test name
- Standard
- Test area



To filter by date simply switch on the by date filter and select the dates that you would like to filter to start from and end at.

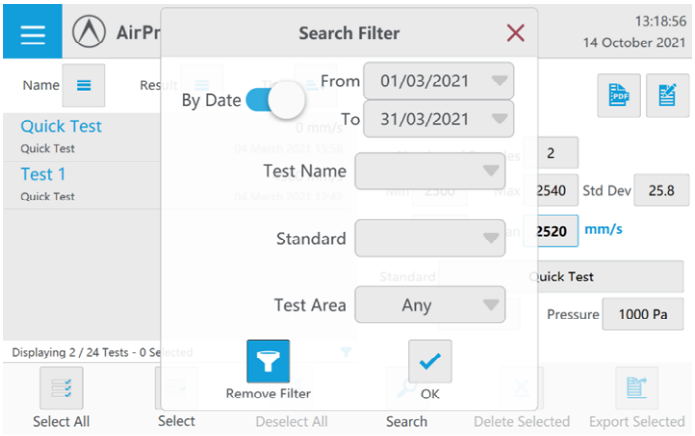
Select the ok button to finish your selection.



To apply any filters select the apply filter button.

Then press ok to view the filtered results.

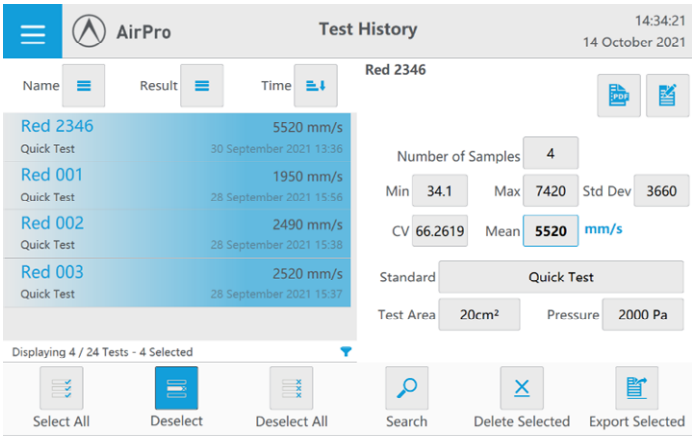
To remove the filter, return to the search filter menu and then select remove filter.



Once a search filter has been applied, you can select all by pressing the select all button.

This is useful for exporting all the tests that have been identified by the filter, you may also want to delete these files if you do simply select delete selected.

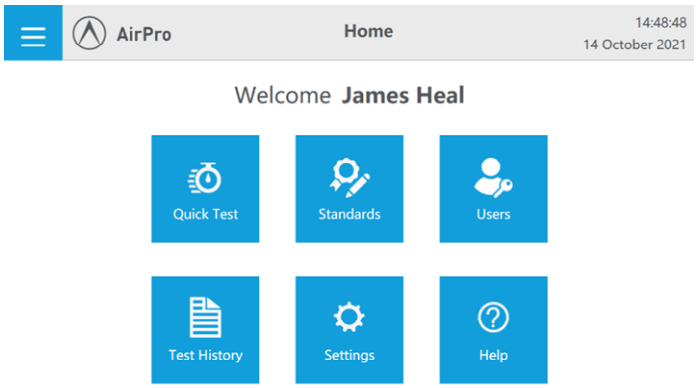
The system will check if you are sure that you would like to delete these files before completing.



We recommend backing up and then deleting your test history from the instrument at regular intervals to prevent the system from becoming cluttered and slow.

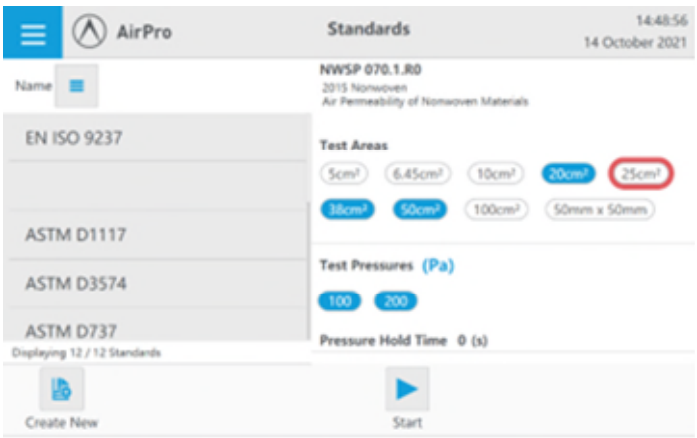
Custom Standard Creator

From the home screen select the standards selector menu.



To create a new standard select create new.

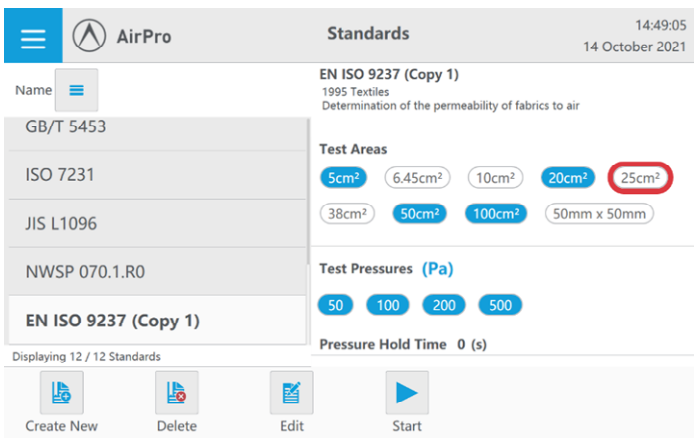
Depending on which standard you have selected the 'create new' will make a copy of that particular standard.



Once a copy has been made you can then edit the new standard.

Select the new copy and then select edit.

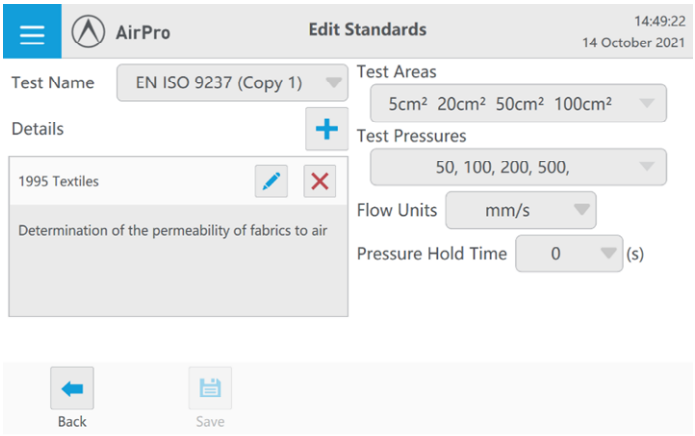
You can't edit pre-set standards.



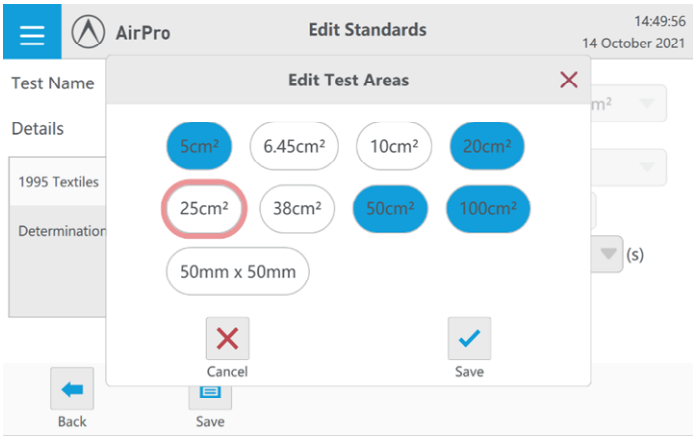
From the edit standards menu you can rename the standard name and provide detail on the standard.

Customise the valid test areas and pressures for your test, as well as the default result unit.

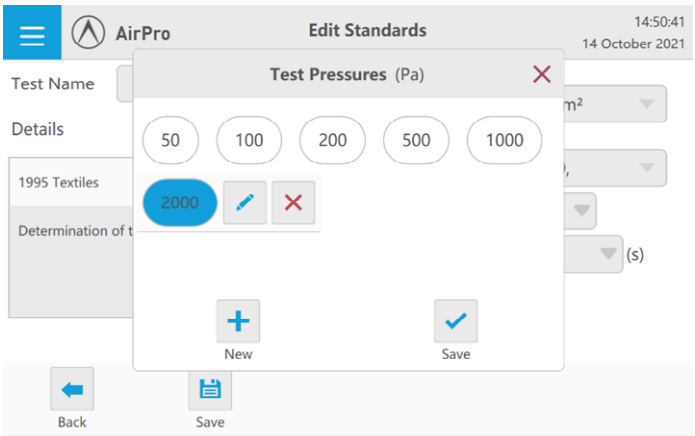
You can also enter a hold time that the instrument has to hold the test pressure at.



Select or deselect relevant test areas.

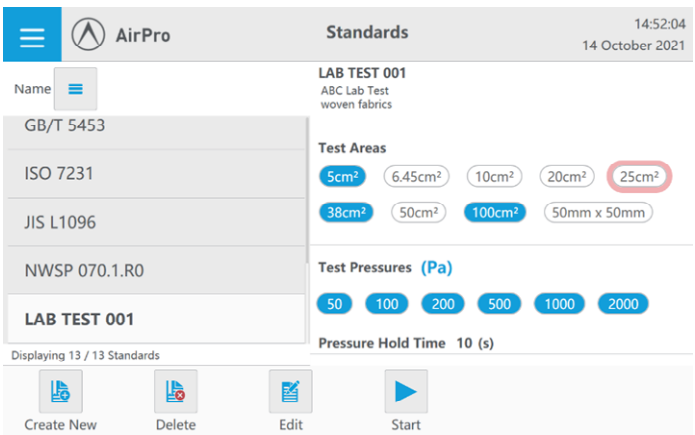


Set valid test pressures.



Example of custom standard.

Select start to begin testing with this new standard.

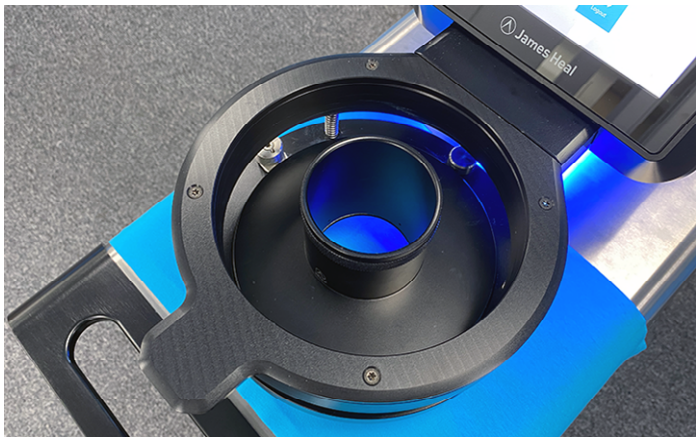


OPERATION AND TESTWISE TOUCH FOR AIRPRO

Loading a Specimen

Ensure the test arm in in its free position.

Place your specimen on the test bed, and align above the lower test area.

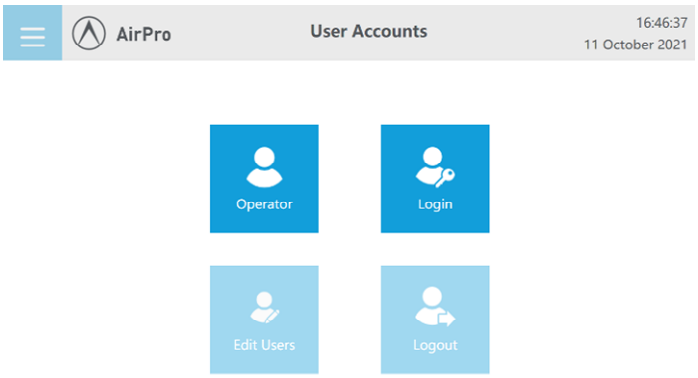


Lower the clamp arm onto the specimen, compress the test head springs until the arm locks in place. You should hear a click.

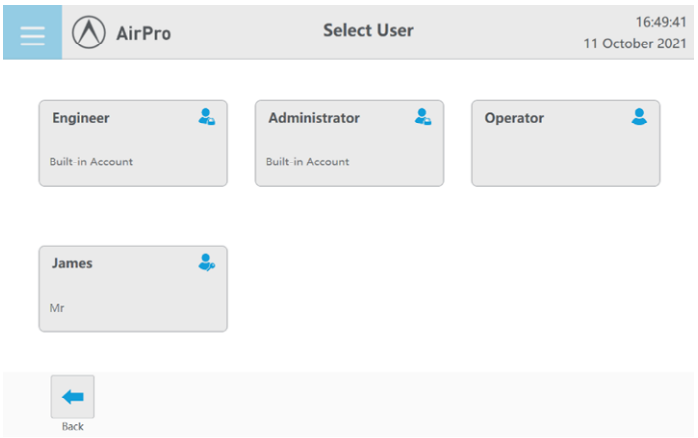
Depending on the test type you are using, a reading may be taken automatically or you may have to start the test.

Logging into TestWise on AirPro

Select login



Select a user and entre your password. Alternatively select the default operator to quickly access the instrument.

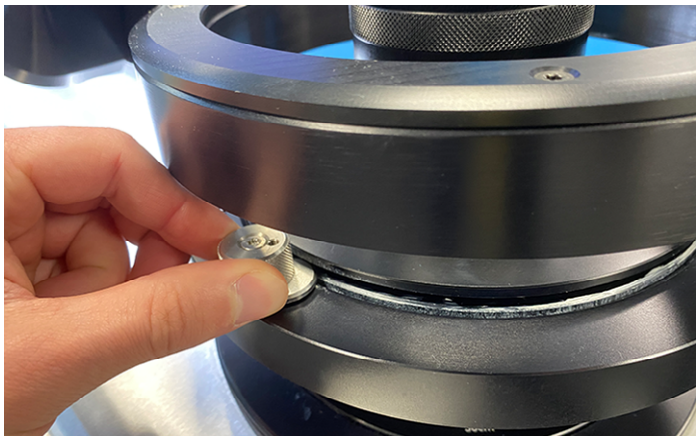


Changing the Test Area

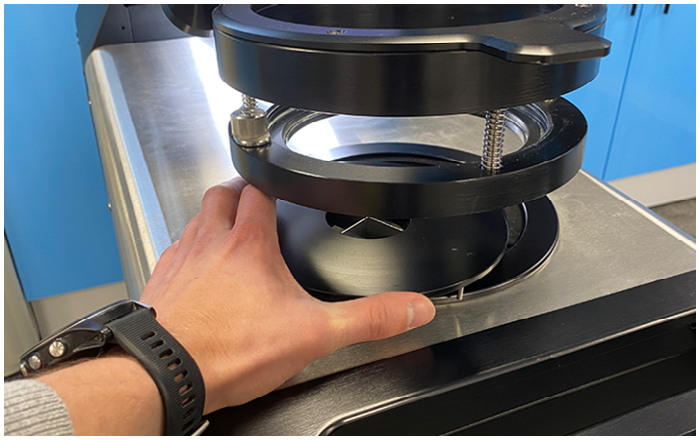
Ensure clamp arm is not locked in place and is in its raised position.

Twist the left and right locking restraints either side of the upper test area to release.

Lift the upper test area from its enclosure. Store in a safe place, such as the AirPro Drawer.



While the upper test area is removed, remove the lower test area, visibility and access will be better at this time.



Select required lower test area and return, ensure you line up the lower flats of the test area with the flats of the test bed.

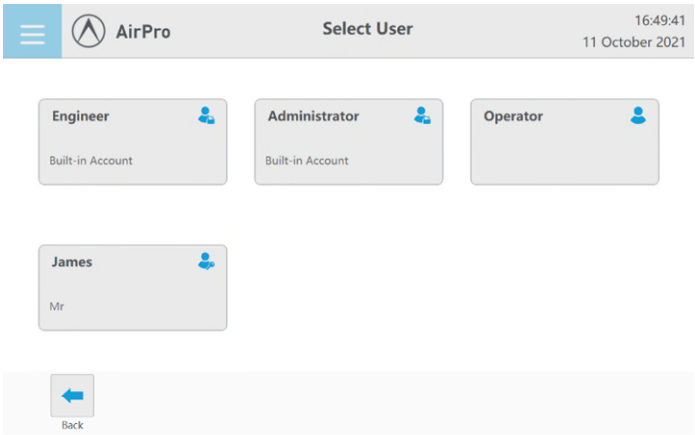
Insert matching test area to upper assembly, and rotate the locking restraints back into the locked position.

Performing a Test

Familiarise yourself with the section for Operator Safety on page 11 before performing a test for the first time.

Ensure test specimens are conditioned according to the standard you are testing to, e.g., ISO 139.

Log into your AirPro account.



Select a pre-set standard from the Standards menu or select Quick Test.

Standards
The left hand column features the standards and also any custom standards created.

Select a specific standard on the left and the details of the standard will be displayed on the right.

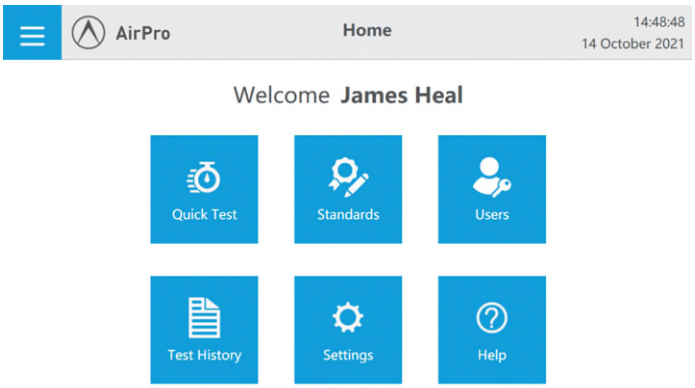
Test Areas highlighted in blue are applicable for use with the standard.

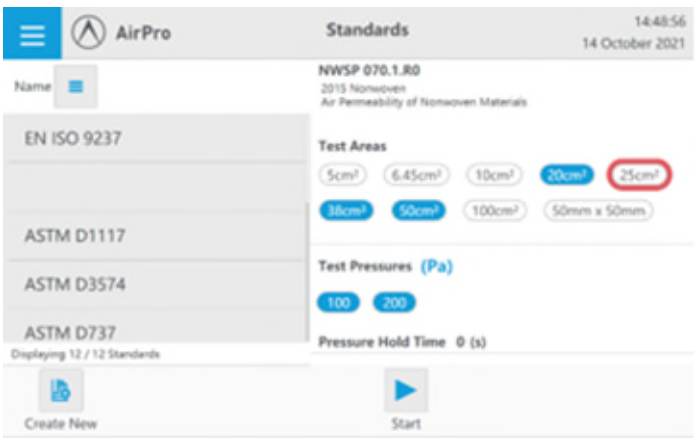
A red or blue ring will be displayed around one test area symbol indicating which test area is inserted into the instrument.

If displayed red the test area in use is not specified for the standard, if displayed blue it is valid.

Test Pressures indicates the standards guidance on the pressure differential to test at.

Pressure Hold Time: some standards specify a stable reading must be held for a set time.





Check you have the correct parameters set before you start testing.

Entre your test name

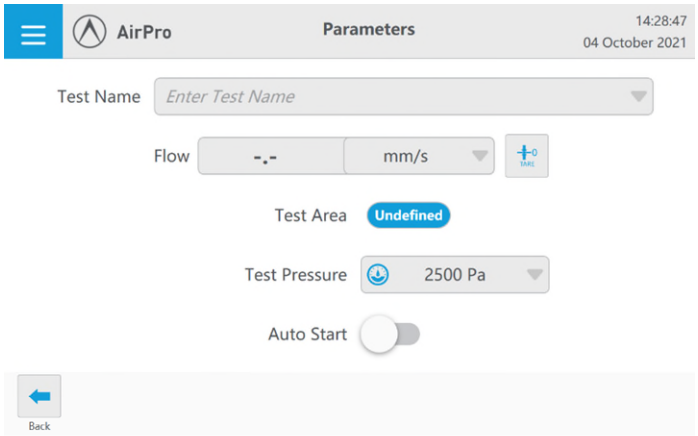
Set flow unit
Tear / Zero the flow reading

Insert desired/correct test area

Set test pressure

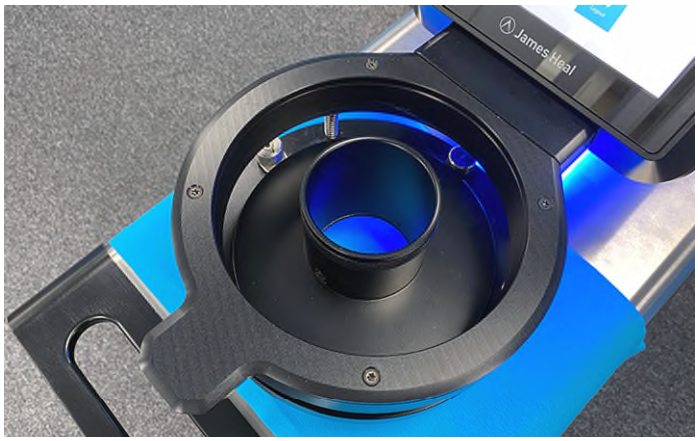
Auto Start: on/off
Start the test when the Clamping Arm is depressed.

Check correct test area is inserted for your selected standard.



Ensure the clamp arm is in its raised position.

Slide test specimen into the test area.

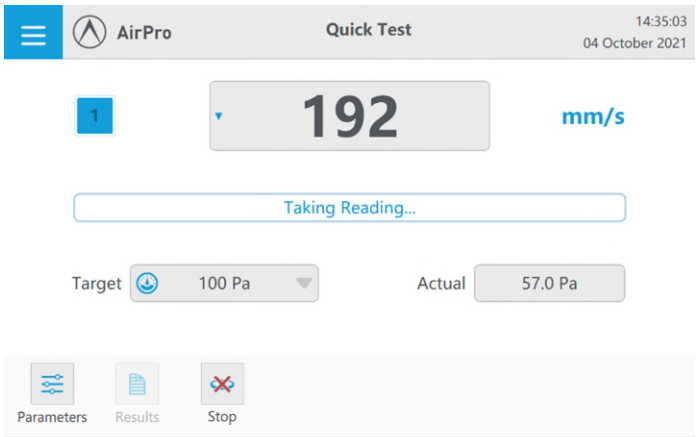


Clamp the upper test area onto the specimen.

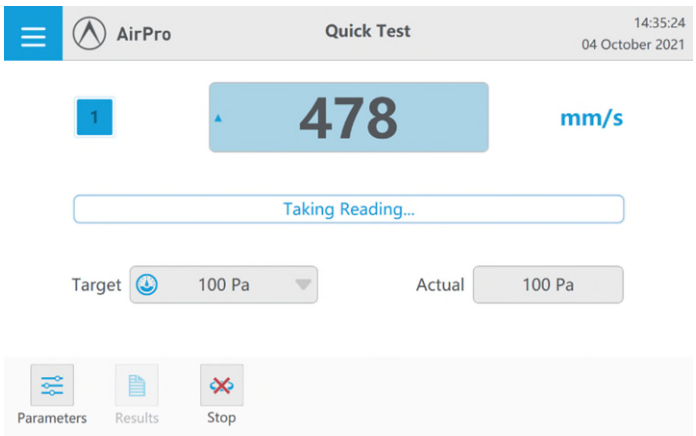
Complete this by pushing down on the test area surround until you hear a click.

If you are using the auto start in parameters the instrument will automatically begin to take your reading.

If not you will have to select start to begin to take the reading.



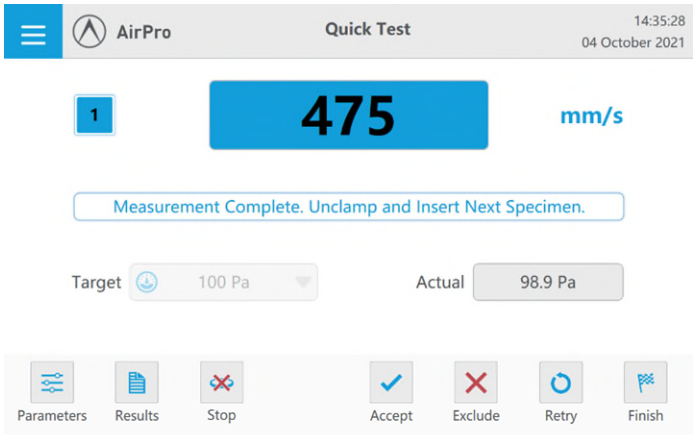
Once the instrument has achieved the correct pressure differential the reading will go light blue.



Once a stable reading is achieved using the automatic test method the AirPro will stop the fan ready for the specimen to be removed and the next one inserted.

You can accept the result, reject it or retry if you are unhappy.

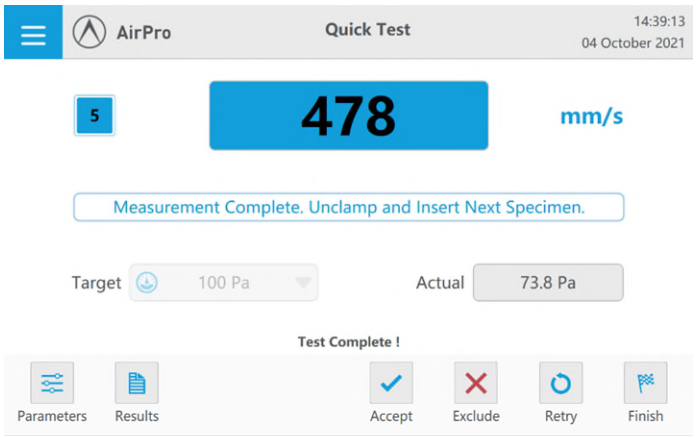
Unclamping the specimen without making a selection will automatically assume you are happy with the result and save it.



The instrument automatically stores each result in your test series. These can be reviewed throughout testing by selecting results on the test menu.

You can quickly identify how many specimen you have tested using the counter.

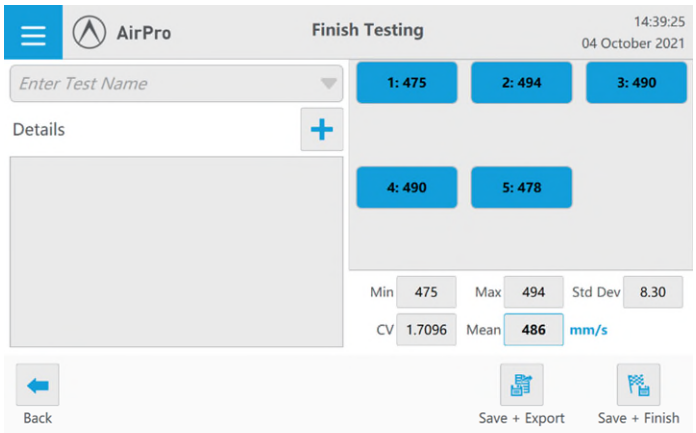
Once you have completed testing the number of samples required, press finish to review, export and save.



On the results screen you can specific test name and add details of the test, such as specimen references or observations.

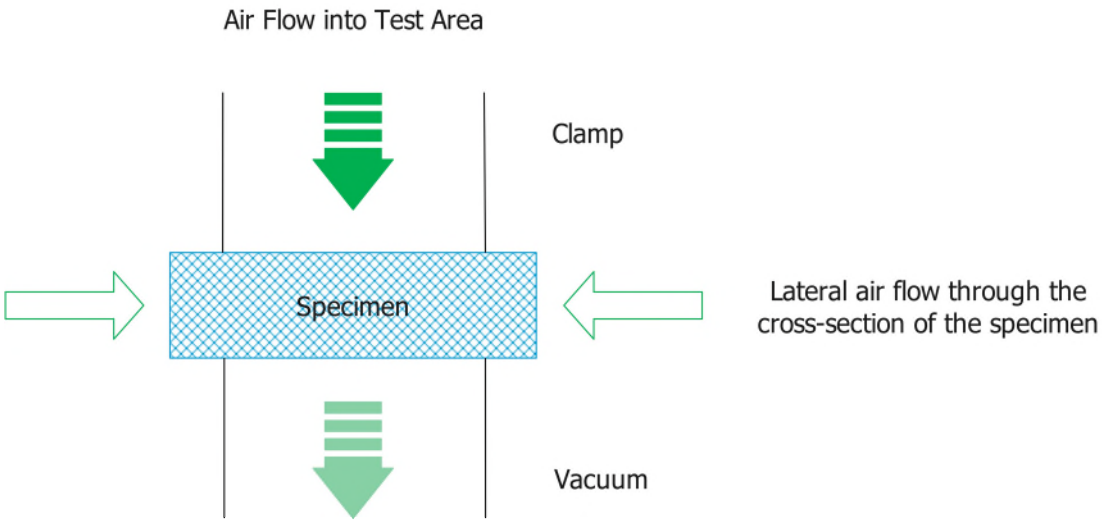
You can then save and export these to a USB drive in Excel or PDF formats.

Alternately select save and finish testing, you can then go back and review your test data in the Test History menu.

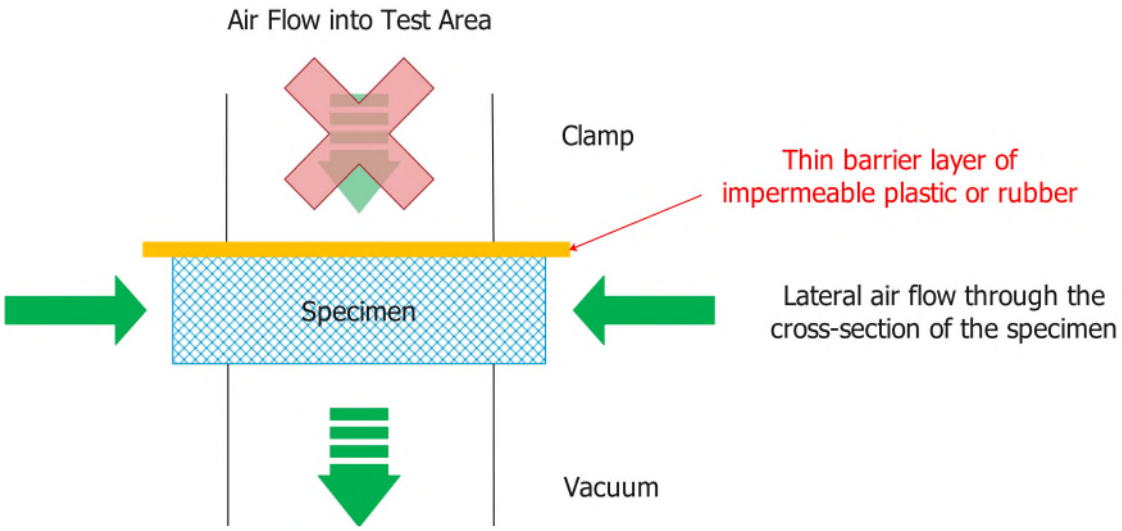


Lateral Air Flow

When testing the air permeability of some dense or thick materials, the lateral air flow through the cross-section of the specimen can be a substantial part of the total air flow and may misrepresent the real test result.



In this case, the same specimen is measured twice at the same location, once in the usually way (representing the total air flow) and once covered with a thin piece of impermeable plastic or rubber (representing the lateral air flow).



The real (or net) air permeability = total air flow – lateral air flow.

Test Screen Overview

Quick Test

Test Parameters

Testing Damp (wet) Test Specimens

When it is required to determine the properties of “wet” material, immerse the test pieces for up to 24 hours in grade 3 deionised or distilled water, or deionised or distilled water containing 0.1 % non-ionic wetting agent or surfactant, with a liquor ratio of approximately 20 times the total volume of the test pieces at room temperature.

If the test specimen has a tendency to float on the surface of the water, it can be submerged using weights made of inert material such as glass.

Remove the test piece from the water, press it lightly between two sheets of blotting paper (see Note 1) or other lint-free absorbent material to remove excess water and proceed to test within 1 minute.

There should be no free water droplets on the test specimen, the specimen should not be dripping wet - only damp (i.e., slightly wet or moist) specimens should be tested on AirPro.

Note 1: white textile blotting paper used for AATCC 35 or ISO 22958 is suitable.

When the damp (wet) testing is complete, check the water trap and moisture filter, please refer to the Cleaning and Maintenance section to remove any water from the pipe system.

CORRECT FUNCTION CHECKS

Measurement Verification – Verification Check Plate

Each day, before commencing testing, it is good practice to verify the calibration of the AirPro using the Verification Check Plate (551-743). This plate is supplied as a standard accessory and was calibrated and assigned to your specific instrument.

- Select Quick Test.
- Ensure units of measure are mm/s and Pressure Drop units are Pa.
- Make a note of the value marked on the Verification Check Plate. At a test pressure of XXX Pa, the instrument should read XXX mm/s.

- Place the Verification Check Plate flat on to the lower test area and ensure the support cross-hairs (wires) are not visible through the four (4) holes.
- Start the test by pressing down on the Clamping Arm.
- If your instrument reads the same value as is marked on the surface of the Verification Check Plate the AirPro calibration is verified. The tolerance of the value is ±3%.

If your instrument does not read the same value as engraved on the Verification Check Plate, then please check the following points:

- The Verification Check Plate is flat on the Test Area.
- Has the AirPro recognised the Test Area correctly? If not then there is a machine problem.
- Check the Verification Check Plate is clean. Use a contactless cleaning method such as compressed air to remove any dust and debris from the four (4) holes.
- The Lint Filter is clean. For cleaning details see Cleaning & Maintenance on page 12.
- Disconnect the electrical power and open the front cover. Examine the hoses (pipes) ensuring there are no kinks and they are securely attached. For more details about opening the front cover see Cleaning & Maintenance on page 12.

If none of these corrective measures resolves the problem then the AirPro may need a repair, please contact your local technical support provider or James Heal Engineering Support.

SERVICE & CALIBRATION

James Heal Service & Calibration is a totally comprehensive, worldwide support programme. When you buy instrumentation from us, it is the beginning rather than the end of an association.

Our aim is simple -to provide precisely the services you need to maintain and protect the value of your investment.

For any enquires you may have regarding your instrument please contact James Heal Service & Calibration via our website, e-mail or telephone.

In all communications please quote the serial number of your instrument and the software version number, e.g., 2135/21/1001 and V1.00.

James Heal Service & Calibration contact details:

Telephone	+44 (0) 1422 366355
Contact us	https://www.james-heal.co.uk/contact-us
Self-service	https://customercare.james-heal.co.uk/en/knowledge
Submit a Ticket	https://customercare.james-heal.co.uk/en/knowledge/kb-tickets/new
Global Network	https://www.james-heal.co.uk/global-network

Software and Firmware

Please contact your installer or agent regarding software or firmware updates, or if you experience any bugs with your software.