James Heal

OPERATOR'S GUIDE

AccuDry³

Standardised Tumble Dryer

Model 1417

UniController

James Heal's
Signature user interface

Covering Serial Numbers
1417/14/1001
& upwards

Extraordinary Testing Solutions

James H. Heal & Co. Ltd.
Halifax, England

THE QUEEN'S AWARDS FOR ENTERPRISE: INTERNATIONAL TRADE 2012

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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 more than 140 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.

Areas of Expertise

Textile: Colour Fastness

- Chlorinated Water
- Dry Cleaning
- Dry Heat
- Hot Pressing
- Laundering
- Light
- 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
- Security of Attachments
- Seam Slippage
- Shrinkage
- Snagging
- Spray Rating
- Stretch and Recovery
- Surface Deterioration
- Tear Strength
- Tensile Strength
- Washing and Drying

Non-Textile

- Bursting strength of nonwovens, plastics, paper 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 plastics

INTRODUCTION

AccuDry^3 Standardised Tumble Dryer

AccuDry^3 has been designed with James Heal's unique product signature and has been produced completely with the user in mind. We have combined James Heal's technical and performance expertise, with intuitive design and operation to produce the most ergonomic and user friendly instrument.

Key Features

- Sleek, ergonomic design
- James Heal's unique UniController user interface for incredible ease of use
- 50/60 Hz compatible

Service & Calibration

- Worldwide Service
- ISO 17025 based Calibration Service
- 18 Months' Warranty

Technical Assistance

- Operator Training
- Knowledge Transfer
- Applications Support
- Engineering Support

Standards

- ISO 6330 edition 3
- M&S PG01
- Next

About AccuDry^3

AccuDry^3 is an air-vented, *Standardised* Tumble Dryer

AccuDry^3 is engineered for laboratory stability tests. It is designed to reduce *machine variables* and *operator error* to the absolute minimum.

The instrument is equipped with James Heals unique UniController user interface, which display the internal air temperature.

All relevant values are displayed continuously throughout the drying cycle.

Opening the Tumble Dryer door interrupts the cycle and allows the operator to make an interim examination of the load. Closing the door and pressing START allows the cycle to continue from the same point.

At the end of the pre-set cycle time, an alarm sounds to alert the operator.

HEALTH & SAFETY

- Read this manual carefully before operating the instrument.
- AccuDry³ has a mass of approximately 40kg, therefore assistance from a colleague or suitable lifting apparatus is recommended.
- AccuDry³ complies with the CE regulations in full
- Ensure the instrument is isolated from the electrical supply before removing any covers. Covers should only be removed by a qualified Engineer or Electrician.
- Have the instrument serviced and calibrated at least once a year by a James Heal Service and Calibration Engineer.
- AccuDry³ is designed to be vented through to the open air. It should have its own ventilation system which should not be joined with any other ventilation system or connected to any other appliance.
- Care must be taken to ensure that the instrument does not stand on the electrical supply cable
- Never tumble dry: rubber, foam rubber, plastic, plastic foam, nappy pants or liners, polythene, paper, dry cleaned garments, large or very bulky items including duvets and sleeping bags. Items not recommended for tumble drying may be marked with a symbol such as:

LINT

Accumulated lint in the dryer can become a fire hazard, it also reduces the efficiency of the dryer by causing longer drying times and increased power consumption.

- Clean the lint filter before every use.
- Ensure the area around the dryer is clear of lint.
- At regular intervals have the *interior* of the dryer casing cleaned of any accumulated lint. For electrical safety, this must be done by a suitably qualified person or a James Heal Service & Calibration Engineer.

Cleaning the Filter

To reduce the risk of fires, it is important to check and clean the lint filter regularly, as the lint produced in the drying process can become a fire hazard if it is allowed to accumulate in or around your tumble dryer.

Accudry^3 will only function correctly if the filter is clean. The filter collects all the lint which accumulates during drying and they must therefore be cleaned at the end of each drying cycle. Always replace the filter after cleaning.

Take the filter out of the dryer.

Remove the lint in the filter.

Place the filter back in the dryer.

FIRST TIME INSTALLATION

If you are commissioning the AccuDry³ unit, please read the following sections in the following order.

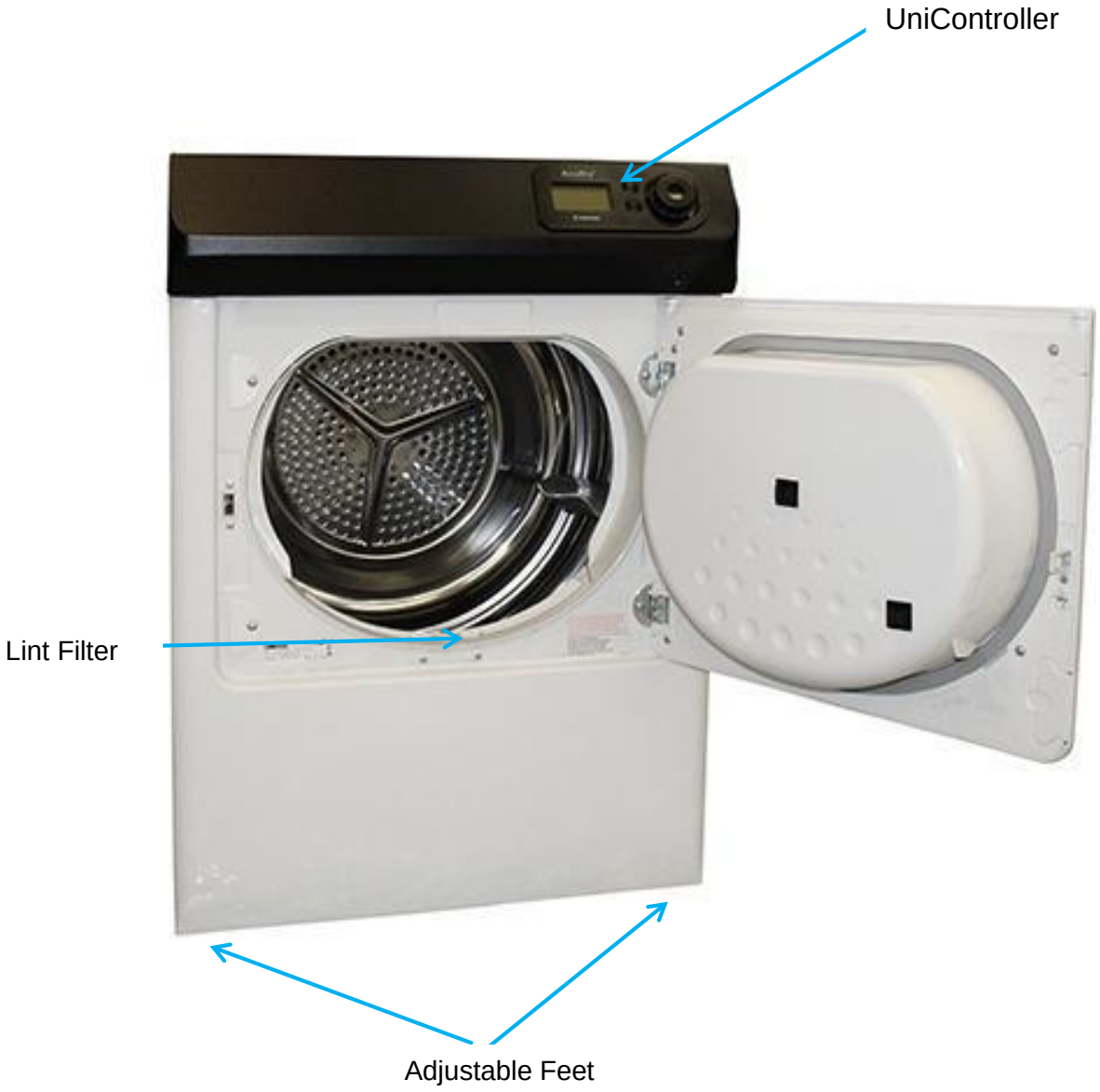
Note: They may not necessarily appear in the same order in the manual as listed below. If you are using a softcopy of the manual, you can click on each section in turn in the contents menu or on the links below and the document will automatically skip to the correct page.

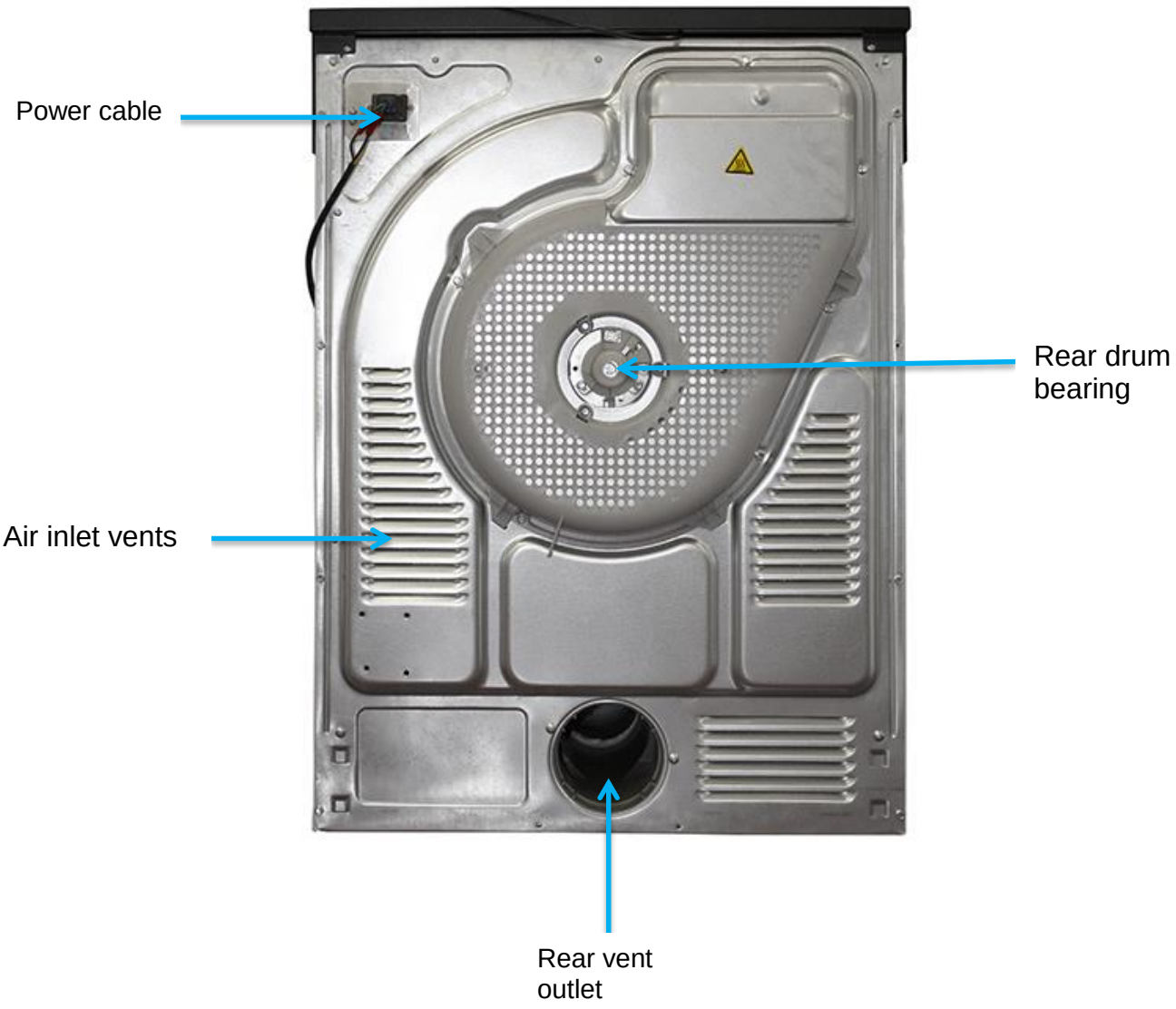
- Unpacking
- Installation
- Electrical

Once the AccuDry³ is commissioned, follow these sections:

- The Essential Features of Accudry³
- Starting a Test
- Introduction to UniController

THE ESSENTIAL FEATURES OF ACCUDRY³




Power cable
Rear drum bearing
Air inlet vents
Rear vent outlet

JAMES HEAL 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 by e-mail, phone or fax.

In all communications please quote the serial number of your instrument and the software version number

For example: 1417/14/1001 and V1.00.

James Heal Service & Calibration contact details:

E-mail support@james-heal.co.uk

Telephone +44 (0) 1422 366355
Fax +44 (0) 1422 352440

UNPACKING

- Remove the tape from the packing case lid and open.
- Carefully remove the packaging and contents from the packing case. Note that any accessories ordered with the instrument are packed with the instrument.
- Remove the sleeve and then very carefully lift the instrument and place it on a firm flat surface.
- Do not dispose of any packaging material until all standard and optional accessories ordered are fully accounted for. If there are any discrepancies, please contact your supplier immediately.

Unpacking Checklist

Please check the serial number plate to confirm that the supply voltage and frequency are in accordance with your order. Also, check the items listed in the tables below are present

Item name	Quantity	Stock code
Venting hose	1	N/A
CD Operators guide	1	297-028
IEC C19/C20 plug set	1	142-357

UNICONTROLLER

Introduction

The UniController is our all new, signature user interface.

The UniController brings new levels of ease of use and functionality.

Elegantly designed, the UniController will reduce training times and can be used by all levels of Operator.

Amongst its many features are:

- Fast, easy editing of cycle time
- High & low settings
- Display of current temperature
- IP 64 Rated to ensure waterproofness.

The UniController allows the user to control all aspects of the test in a simple and intuitive way.

The James Heal UniController consists of

- LCD Display
- 2 selection buttons
- Push-Rotate Selector

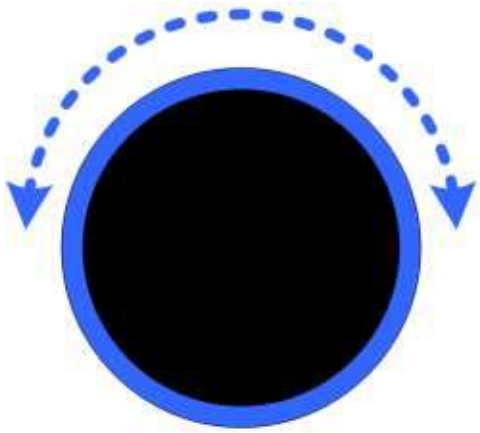
Using the UniController

When AccuDry³ is initially powered up, the James Heal icon will be briefly displayed followed by a brief display of the Firmware version number.
These are only displayed when the unit is powered up.

The Push-Rotate (PR) Selector

The Push-Rotate (PR) Selector has two main modes of operation:

- **Push** to Start, Select or Enter
- **Rotate** to cycle through the options.



At the end of a test, the blue LED illumination will pulse on and off to indicate the AccuDry³ requires attention from the Operator.

Buttons

For the purposes of this Operators Guide, the top selection button will be called ‘Button1’ and the bottom selection button will be called ‘Button 2’

The function of the Button 1 and Button 2 can change throughout the testing process.

Normal Options

Using the UniController for AccuDry³ you can set or change the following:

- Time
- Temperature
- Cool down time

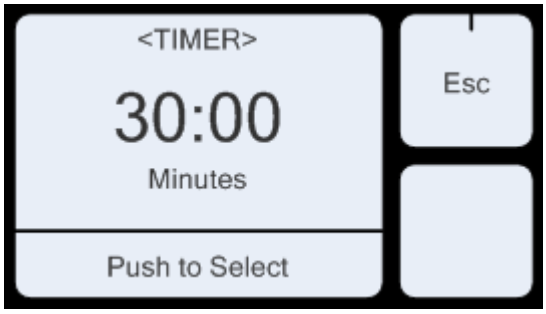
Additional Options

Note: To make this selection, you must turn the PR Selector in the first 30 seconds after powering up the AccuDry³ in order to access these settings.

- Change language
- Volume

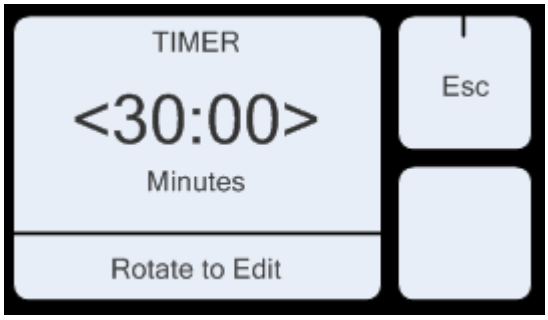
Setting the Timer

While AccuDry³ is not running, turn the PR selector clockwise.



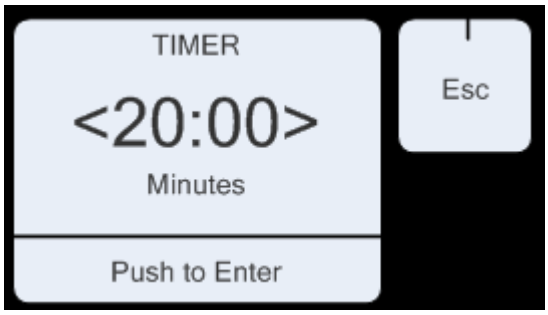
The display changes.

Push the PR Selector to move to edit mode.



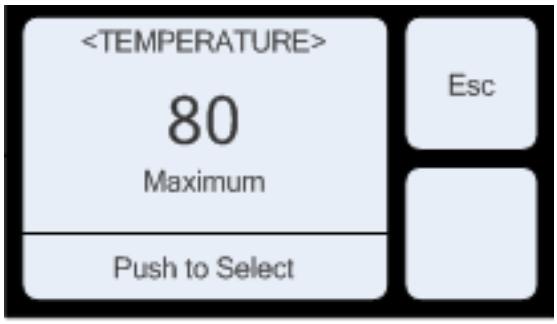
Rotate the PR Selector to change the cycle time required.

Rotate clockwise to increase and counter clockwise to decrease



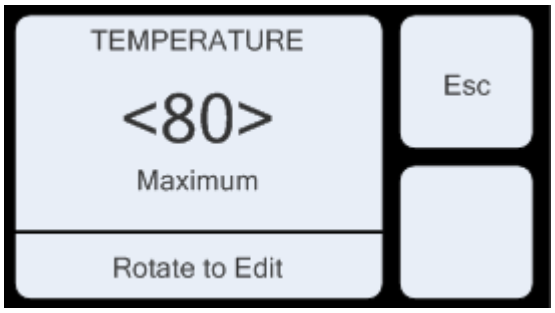
When the correct time is displayed, push the PR Selector to enter the new value.

Setting the Temperature

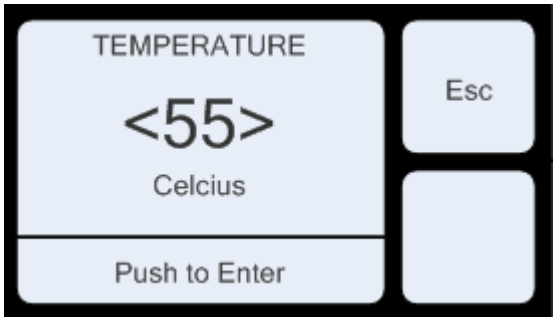


The display changes.

Push the PR Selector to move to edit mode.

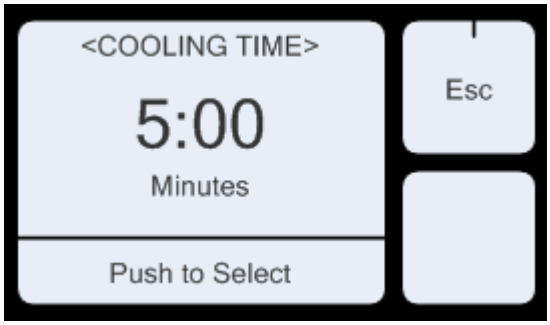


The temperature can be changed by rotating clockwise or counter clockwise



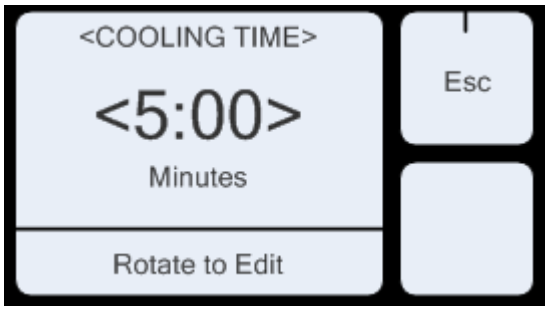
When the correct time is displayed, push the PR Selector to enter the new value.

Setting Cooling Time

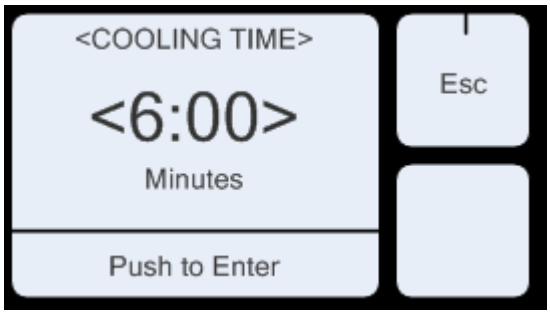


The display changes.

Push the PR Selector to move to edit mode.

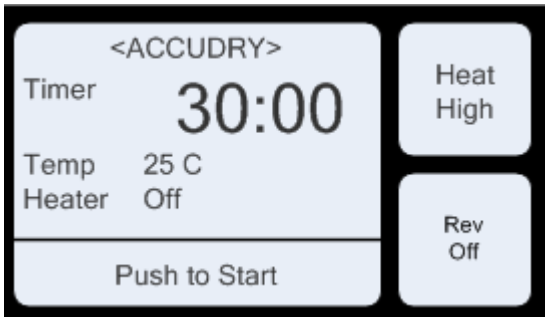


Rotate clockwise to increase and counter clockwise to decrease



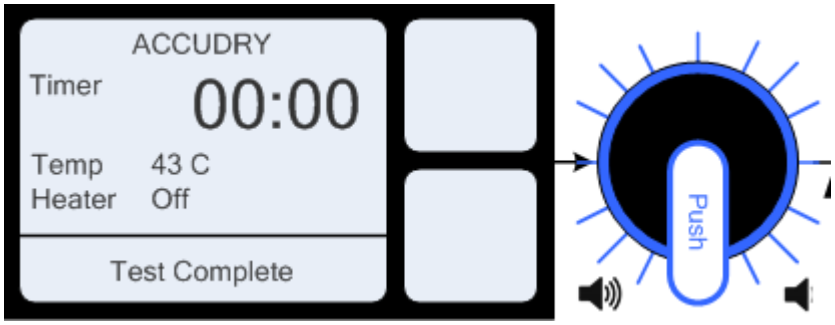
When the correct time is displayed, Push the PR Selector to enter the new value.

Starting a Test



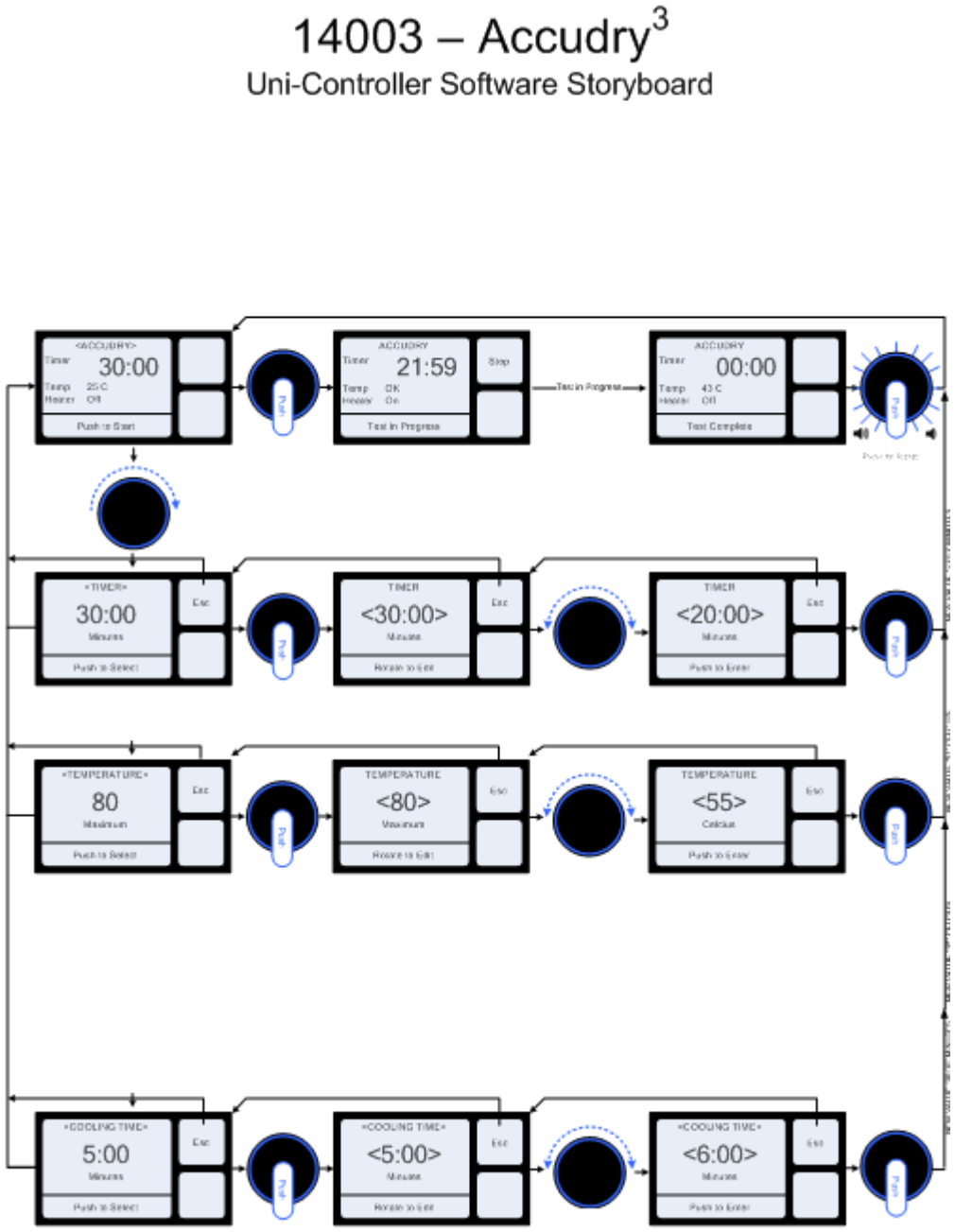
Push the PR Selector to Start the test.

The counter will count-down to zero.



At the end of a test, the blue LED illumination will pulse on and off to indicate the **AccuDry³** requires attention from the Operator.

Overview of the UniController for AccuDry³



INSTALLATION

AccuDry³ is delivered on a wooden palette. Use a forklift truck or hydraulic pump trolley to move the packing case as near as possible to the final location.
Once in position, follow the instructions in the Unpacking Section to remove the outer case.
AccuDry³ can now be lifted from its palette and in to location using a pump truck if available, or a by hand. If lifting by hand a minimum of 2 people will be required. These instruments are heavy and should be moved with care.
Do not dispose of any packaging material until everything is accounted for.

Levelling

To keep vibration and noise to a minimum when the dryer is in use, it should be placed on a firm, level surface. The machine must be perfectly level to ensure safe and proper operation.

Once in its permanent operating position, check that the dryer is absolutely level with the aid of a spirit level. If it is not, raise or lower the two adjustable feet at the front of the machine until it is.

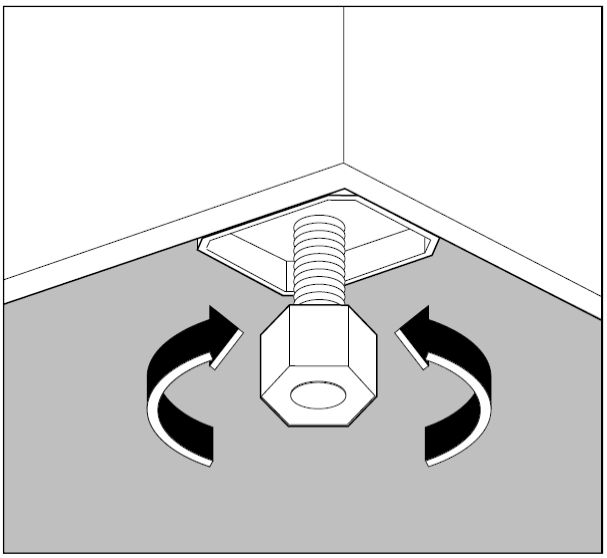


Figure 1: Adjust the levelling feet

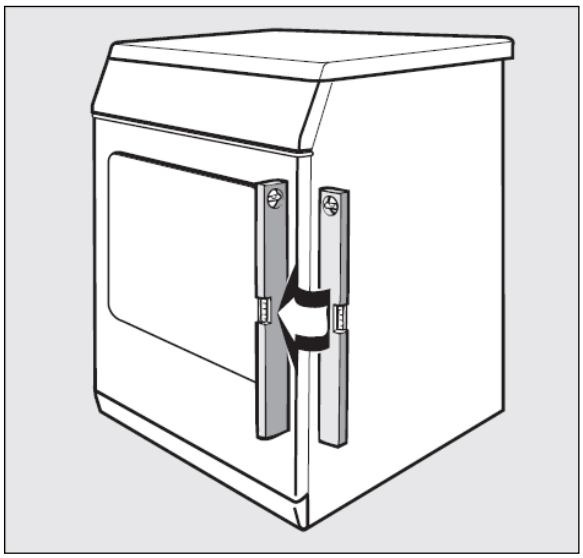


Figure 2: Checking with spirit level

The feet must never be removed. Do not restrict the floor clearance through deep pile carpets, strips of wood or similar. This might cause heat build-up which would interfere with the operation of the appliance.

Venting

To simplify the installation, there is a choice of vent outlets: one at the back, the others in the left and right-hand side. Connect the hose to whichever is the more convenient by pulling the ring nut (A) from the vent outlet at the back, screwing it on to the hose and pushing it firmly back into place. The unused vents should be sealed with the special snap covers provided.

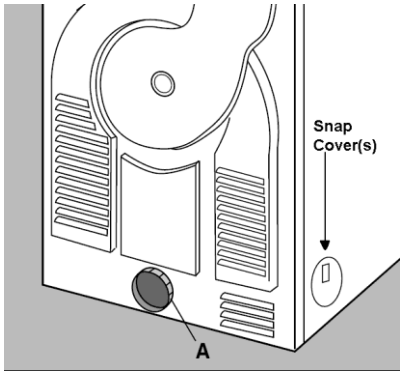
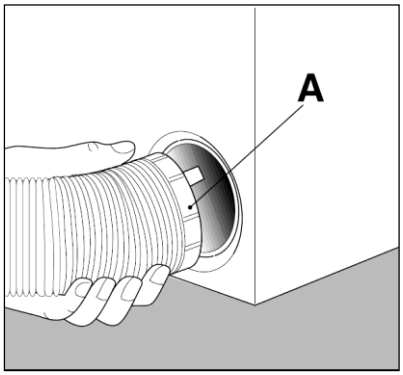


Figure 3: Vent ring nut



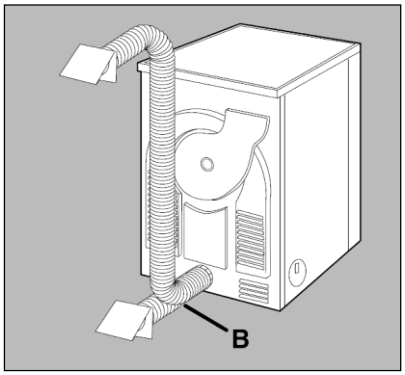


Figure 4: Draining hole

The exhaust air must not be vented into a chimney or vent flue which is in use, nor should it be connected to ducting which ventilates rooms with fuel burning appliances.

If the hose is long and the room temperature low, moisture may condense to water inside the hose. To prevent this water from lying in the hose or flowing back into the tumble dryer, it is advisable to drill a small hole (approximate diameter 3 mm) in the lowest point of the hose and to place a small collecting container below it. (See Figure 4, point B).

Once connected to the dryer, run the vent hose to the desired outlet point, ensuring that the overall length is less than 2 metres, and that it contains no more than two (2) bends.

In order to prevent the tumble dryer from overheating, it is important that the exhaust is unobstructed. Therefore, in case of a permanent hose fitted to an exterior wall, it must be ensured an exhaust capacity of at least 150m^3/h.

Ensure that the vent hose is not obstructed or compressed. If the hose is partially obstructed, drying efficiency will be reduced, resulting in longer drying times and higher energy consumption. If the hose is completely obstructed, the safety cut-outs within the machine may operate.

Electrical

- Stand the instrument on a firm surface.
- Connect the electrical power supply to the mains input using the lead provided.
- The power rating for **AccuDry³** is 2600W.

Electrical connection

Any electrical work required to install this appliance should be carried out by a qualified electrician or competent person.

WARNING: THIS APPLIANCE MUST BE EARTHED.
The manufacturer declines any liability should this safety measure not be observed.

Before switching on, make sure the electricity supply voltage is the same as that indicated on the tumble dyer's serial number label.

The appliance is supplied with a removable UK 13 Amp plug. In the event of having to change the fuse in the plug supplied, a 13amp ASTA approved (BS 1362) fuse must be used.

The appliance is also supplied with Standard euro & standard Chinese removable plug, these are non- fused.

You can order a replacement plug set from James Heal (stock code…..

Fuses

One (1) fuse is fitted, located inside of the machine inside the electrical panel

To replace a fuse, isolate from the mains supply, Remove the lid,
Remove the electrical panel. The 13 amp fuse is located on the interface board.

TECHNICAL DATA

Dimensions, excluding packaging	Height Width Depth		850 mm 600 mm 625 mm
Mass	Net		40 kg
Power supply voltage Total power adsorbed			Single Phase 230V ± 10%, 50/60 Hz 2600 W (13A)
Power consumption	Maximum		4.25 kWh
Maximum recommended load	Cellulosic Synthetic		6.0 kg 2.5 kg
Drum reversal			non-reversing
Drum	Diameter Depth Volume		580 mm 410 mm 108 litres
Peripheral centrifugal acceleration			0.75g
Rotational velocity			52 rpm
Lifting vanes	Number Spacing Dimensions	 Length Width – base Width – peak Height	3 120° 300 mm 40 mm 15 mm 75 mm
Heating period	Maximum		235 minutes
Cool down period	Minimum		5 minutes
Ambient Temperature	Minimum		5°C
	Maximum		35°C
Warranty	18 months		
Life expectancy	12000 hours usage subject to a service at least every 12 months		

EXHAUST TEMPERATURE

Accudry^3 measures the temperature of the exhaust air using a “T” type thermocouple which is located just below the drum filter. It can be identified as a twisted pair of wires: one brown, the other white.

- DO NOT adjust the position of the thermocouple unless instructed to do so by an HEALINK Support Engineer.
- NEVER reduce the length of the thermocouple wire.

To verify the exhaust temperature select one of the methods described below. Method 1 measures the air temperature close to the exit of the exhaust. Method 2 is used to verify the air temperature close to the drum. Note: there may be a difference in temperature of approximately 10^{o}C.

Figure 5: Digital thermometer reading

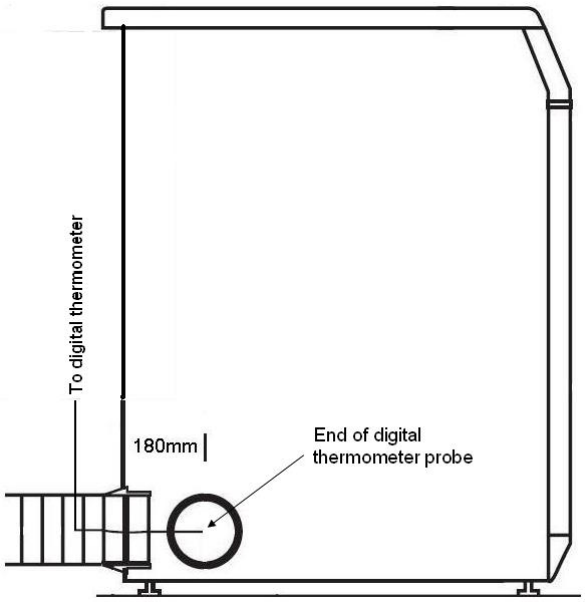


Figure 6: Rear exhaust check

Method 1 – Rear exhaust check

- Ensure Accudry^3 is correctly installed before continuing with the following steps.
- Position a digital thermometer probe 180mm *into* the exhaust vent (see Figure 6, above). The thermocouple or probe must not come into contact with the exhaust ducting. The digital thermometer probe should remain in this position throughout the test.
    - *Note: use the vent position (rear or side) which is currently in use.*
- Set the Accudry^3 heating time to 60 minutes and the temperature to Maximum (80ºC).
- Take a 1kg load (20 x 50g pieces) of dry polyester makeweights (ballast).
- Wet out in the Wascator using ISO 6330 wash programme 4A.
- Immediately transfer the load to the Accudry^3 Tumble Dryer and close the door.

    Note: only the rinses and final spin are required.

    Note: some Retailers may specify other wash programmes.
- Start the test, Using the UniController
- At 25 MINUTES, note the exhaust temperature reading of the digital thermometer.

    Note: some digital thermometers have a "hold" feature which is useful for temporarily "freezing" the display.
- To finish off, remove the digital thermometer probe from the exhaust venting. If the probe was inserted through the flexible PVC venting, patch the hole with PVC insulating tape.

Method 2 – Front exhaust check

This method is used to verify the temperature measured and displayed by Accudry^3 by comparing the reading with an independent digital thermometer placed near the fixed “T” type thermocouple.

- Ensure Accudry^3 is correctly installed before continuing with the following steps.
- Remove the filter and insert the probe of the digital thermometer close to the fixed thermocouple. The two (2) probes should be close but not touching each other. If necessary, fix into position using PVC insulating tape.
- Wait 30 minutes to allow the equipment to stabilise.
- With the digital thermometer remaining in position, carefully replace the drum filter. Carefully close the door.
- Set the Accudry^3 heating / cooling times and the temperature as required.
- Push to **START** on the UniController
- Take comparative readings at convenient times throughout the heating cycle.
- When the drying cycle has completed, carefully remove the digital thermometer.

Alternative methods of temperature measurement are also available. For example, it is possible to fix self-adhesive “temperature recording strips” to the load or part of the drum. Temperature recording strips indicate the maximum temperature achieve throughout the heating period. Note: there will be variation between these measurements which are *surface temperature* measurements, and the *exhaust air temperature* measurements described above.

Stock Code	Description	
789-541	Range A	40º - 71ºC - per pack (10)
789-542	Range B	77º - 116ºC - per pack (10) (illustrated)

Figure 7: Temperature recording strips

CE Conformity

AccuDry³ is CE marked.

It therefore complies with the following directives:

- Machinery Directive 2006/42/EC
- Low Voltage Directive 2006/95/EC
- EMC Directive 2004/108/EC
- WEEE Directive 2002/96/EC
- RoHS Directive 2002/95/EC

REVISION HISTORY

See front cover for publication number, e.g., 290-1417-1

Revision	Date	Originator	Details Of Revision
A	04/02/2015	LW	Created Operators Guide