James Heal
Extraordinary Testing Solutions

Impulse

RANDOM TUMBLE PILLING TESTER

Our Impulse range, available in 4 or 2 chamber models, are the only instruments that offer interchangeable impellers and greatly improved sample rotation throughout the test to give reliability, accuracy and flexibility.

MODEL NUMBER: **1666-4** STOCK CODE: **906-506**
MODEL NUMBER: **1666-2** STOCK CODE: **906-507**

KEY BENEFITS

INCREASED CAPACITY
The 4 chamber instrument offers increased production within the lab.

SPECIMEN ROTATION
High confidence that the specimens will continue to tumble during the entire duration of the test.

CONFIDENCE IN RESULTS
The user has greater confidence in the subsequent results / grades.

INTERCHANGEABLE IMPELLERS
Enable tests to be carried in accordance with 9 standards, which include options for air flow.

INTUITIVE TOUCHSCREEN
Test set-up is extremely simple and instinctive enabling a new user to learn the process in seconds.

LINERS
Neoprene® rubber liner and cork liners are available for compliance to 9 standards.

DUST AND LINT FILTERS
Prevents the build-up of excessive lint around the instrument creating a cleaner working environment.

IMPELLERS & STANDARDS

Standards are listed directly below the appropriate impeller, and its stockcode. **Please note:** Impeller requirement must be specified at the time of ordering but alternative impellers can be also be purchased and fitted by the user.

ASTM

794-650

ASTM

ASTM D3512 Pilling Resistance and Other Related Surface Changes of Textile Fabrics: Random Tumble Pilling Tester

adidas

adidas 4.07 pilling (ASTM D 3512) adidas modified.

SAC

GB/T 4802.4 Textiles - Determination of fabric propensity to surface fuzzing and to pilling - Part 4 - Random rolling method.

ISO

ISO 12945-3 Textiles- Determination of the fabric propensity to surface pilling, fuzzing or matting -- Part 3: Random tumble pilling method.

* This impeller is used for ISO-12945-3 when air **IS** available

JIS*

JIS L1076 method D Type A Testing methods for pilling of woven fabrics and knitted fabrics

SABS

SANS 6116 Resistance Of Textile Fabrics To Pilling And Fuzzing (Random Tumble Method)

ISO

794-652

ISO

ISO 12945-3 Textiles- Determination of the fabric propensity to surface pilling, fuzzing or matting -- Part 3: Random tumble pilling method *

* This impeller is used for ISO-12945-3 when air **IS NOT** available

AFNOR

NFG 07-121 Determination Of Resistance To Pilling Of Woven And Knitted Fabrics.

AFNOR

NFG 07-132 Textiles - Testing Of Fabrics - Determination Of Resistance To Fraying - Dry Test

JAPANESE

794-656

JIS^

JIS L1076 method D Type B Testing methods for pilling of woven fabrics and knitted fabrics

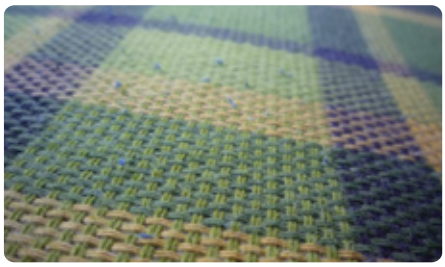
* Required

^ Optional

APPLICATIONS FOR IMPULSE

KNITTED FABRICS & WOVEN TEXTILES

Examples are upholstery and sweaters



Upholstery

Sweaters

THE DEFINITION OF PILLING

Pilling is the formation of small balls of entangled fibres on the surface of the fabric. Such surface deterioration is generally unacceptable to the consumer.

The amount of pilling that develops is governed by the rate of fibre entanglement, the rate of surface fibre development and the rate of fibre and pills wear-off.

These rates depend on the fibre, yarn and fabric properties.

Many pilling tests now include assessment of fabric fuzzing, which can be a precursor to pill formation.

SETTING UP THE TEST

STEP 1 Lining Test Chambers

Select either the cork or neoprene liner as specified by your chosen test method, roll and insert into the chamber. Ensure the liner is secure and flat against the chamber walls. (Full details in the Impulse Product Guide)

STEP 2 Interchangeable Impellers

The impeller in our Impulse models are interchangeable. When it is necessary to change the impellers it is a very simple process.

Isolate the instrument from the electrical power supply before fixing the impellers appropriate to the required standard. Each impeller is fixed with two screws on connecting flange into holes in the rear of the Test Chamber. (Details in the Impulse Product Guide)

STEP 3 Set-up the Test using the James Heal Touchscreen

Set up a test using the intuitive and simple James Heal Touchscreen. Details of the Touchscreen with illustrations on page 7 of this Sales Tool Kit.

IMPULSE AT A GLANCE

Instrument available with 4 or 2 chambers

Intuitive James Heal Touchscreen

Touchscreen includes pre-set counter for running in of new Neoprene liners (ISO 12945-3)

Interchangeable Impellers

Safety Feature: instrument will not operate unless door is secure

High confidence the specimens will tumble for the entire test duration

Dust and Lint Filters at the back of the instrument keeps the working area clear of excessive lint

Neoprene and cork liners available to suit all relevant standards

INCREASED CAPACITY

The 4 chamber instrument offers opportunities for increased production and improved efficiency within the laboratory.

SPECIMEN ROTATION

Enhanced specimen rotation within the chambers offers the user high confidence that the specimens will continue to tumble during the entire duration of the test.

This offers a users a significant benefit over other instruments of this type available in the market.

CONFIDENCE IN RESULTS

As the frequently of samples dropping to the bottom of the chamber has been significantly reduced, if not eliminated, the user has greater confidence in the subsequent results / grades.

Additionally the laboratory efficiency will be improved as the need to repeat tests or for technicians to watch the test process is virtually negated.

INTUITIVE TOUCHSCREEN

As with all James Heal Touchscreen instruments the controls are clear and easy to use ensuring the setup of a test is extremely simple. The screen is instinctive and intuitive enabling a new user to learn the process in seconds, minimising training time.

The Touchscreen is available in English, French, German, Turkish, Spanish, Italian, Hindi, Chinese and Bangla.

INTERCHANGEABLE IMPELLERS

The impellers are easily interchangeable by the user to enable tests to be carried out in accordance with ISO, ASTM, adidas, SAC, JIS, AFNOR and SABS standards.

RELIABLE ROTATION

The specimens are agitated within the chambers by a high-speed (1200 rpm) impeller at a constant calibrated speed which is guaranteed irrespective of variations in the electrical supply voltage.

This is checked during the regular Service & Support visits.

CORK & NEOPRENE LINERS

We supply the cork liners used for the majority of the standards and also, for compliance with ISO 12945-3, the chloroprene (trade name - Neoprene®) rubber liner.

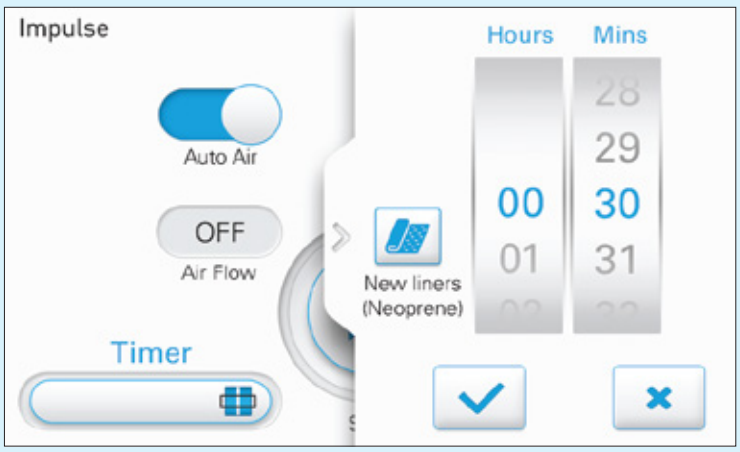
Our cork liners are pre-cut to size, are quality controlled in-house and have a consistent thickness. We can also supply liners to fit instruments made by other companies.

DUST AND LINT FILTERS

Dust and lint filters at the rear of the instrument collect lint and loose fibre to prevents the build -up of excessive lint around the working area and create a cleaner environment.

These can be removed by the user and emptied as required.

IMPULSE TOUCHSCREEN



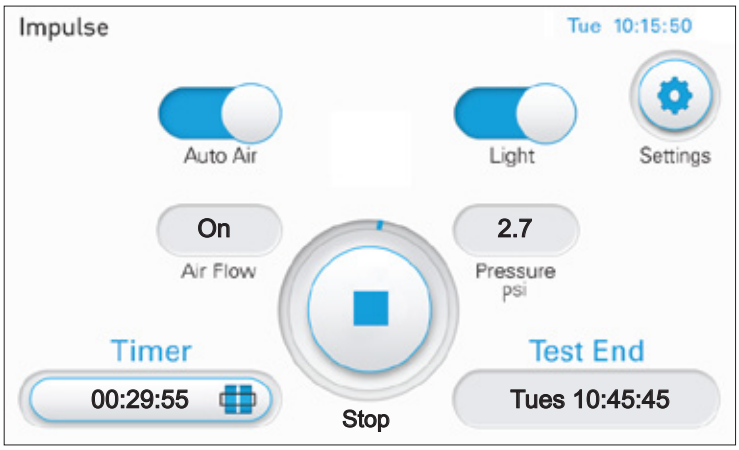
Simple and Efficient Test Setup

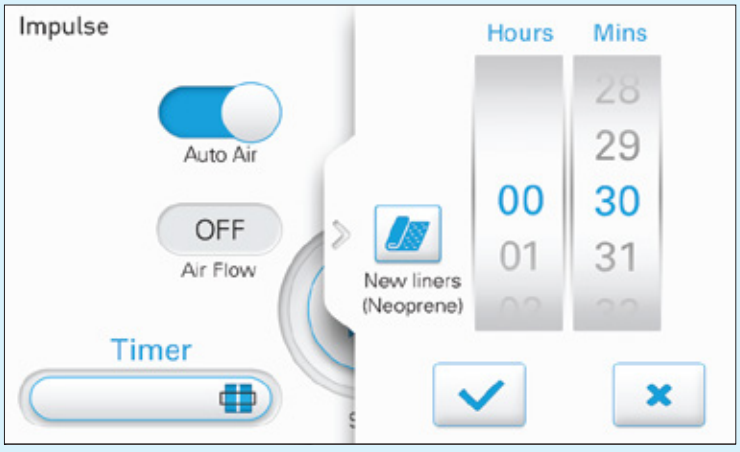
As with all James Heal Touchscreen instruments the controls are clear and easy to use ensuring the setup of a test is extremely simple

As the screen is instinctive and intuitive a new user will learn the process instantly, minimising training time

End of Test Visibility

Once the test starts the Test End time and a progress bar will be displayed.





Running in of Neoprene liners

In the ISO standard 12945-3 is a requirement to run-in new Neoprene liners for 3 hours prior to use

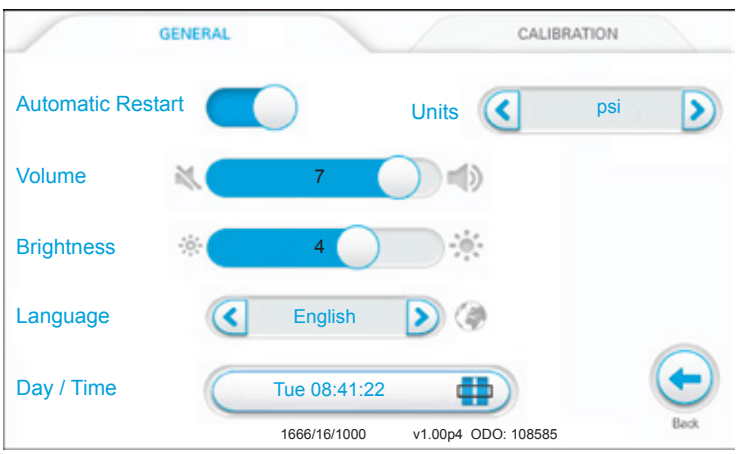
Once the ‘New liners (Neoprene)’ button is touched, the timer will automatically be set to ready to run for the required 3 hours

Accessible Settings

Settings for brightness, volume, date, language and automatic restart can all be easily accessed from the top menu bar

The Touchscreen is available in English, French, German, Turkish, Spanish, Italian, Hindi, Chinese and Bengali.

In this screen the units of air pressure can be selected from psi, bar or kPa



ACCESSORIES & IMPELLERS

Impulse is available in models with 2 or 4 test chambers and is supplied WITHOUT impellers. Ensure the required Impellers are selected separately.

Instrument		
Model No.	**Stock code**	**Model**
1666-4	**906-506**	**4 Chamber** Impulse Random Tumble Pilling Tester
1666-2	**906-507**	**2 Chamber** Impulse Random Tumble Pilling Tester

Standard Accessories included with both models of Impulse			
Stock Code	**Item**	**Stock Code**	**Item**
785-509	Grey Cotton Sliver - Pack (approx.1 m)	789-368	Spatula
393-527*	Cork Liner - Pack (50)	772-285	Specimen Template 105 mm x 105 mm
785-116	Specimen Edge Glue - Bottle (180 ml)		

Standard Accessories for specific Impulse model as stated below					
Stock Code	**Item**	**2 Chamber 1666-2**	**Stock Code**	**Item**	**4 Chamber 1666-4**
794-819	Pneumatic Adapter 6mm diameter to 1/4 inch BSP		794-907	Pneumatic Adapter 8mm diameter to 1/4 inch BSP	

These accessories can also be ordered individually by quoting the relevant stockcode

* Cork Liner 393-527 is suitable for Impulse and machines made by Atlas
The dimensions of the Liner are: 457± 2mm long x 146 mm wide

Impellers		
Stock Code	**Item**	
794-650	ASTM	Complies with adidas 4.07, ASTM D3512, GB/T 4802.4, JIS L1076, NFG 07-132 & SANS 6116
794-652	ISO	Complies with ISO 12945-3 and NF G 07-121
794-656	JIS	Complies with JIS L 1076 method D

DIN impeller - available on special request -Complies with DIN 53867

Accessories	
Stock Code	**Item**
758-566	Neoprene Liner for EN ISO 12945-3 and NF GO7-121 - per pack (5).
766-450	ASTM D 3512 Photographic Standards Consists of 5 photographs, 105 mm square, graded no.1 (very severe pilling) to no. 5 (no pilling)
393-533^	Cork Liner (Extra Long) - per pack (50) - Length 460 mm ± 1 mm

^ For non-James Heal machines for which a slightly longer liner is required

393-527

758-566

785-509

794-654

772-285

766-450

SPARE PARTS

1666-2/1666-4 spares	2 year Spare Kits for either model	Comprising of	
Stock Code	**Item**	**Stock Code**	**Item**
390-270	1 x Air Filter	144-403	2 x LED Spotlight Assembly
195-348	3 x VOLTAGE SURGE SUPPRESSOR	383-363	1 x Timing Belt 278F0057 OBS
130-825	1 x Fuse 1A 5 X 20mm T	394-786	1 x Door Gasket
130-870	1 x FUSE, ANTISURGE, 6.3A		
390-289	1 x 3/2 Solenoid Valve 1/8" Port 1Mpa c/w foot bracket fitted		

INSTALLATION GUIDE

Item	Comment
Electricity	
Impulse 4 1666/4	115/230V +/-10% 50/60Hz Phase: 1Ph + N + PE Watts: 135W Amps: 1.2/0.6A
Impulse 2 1666/2	115/230V +/-10% 50/60Hz Phase: 1Ph + N + PE Watts: 90W Amps: 0.8/0.4A
Air	Pressure (bar): 2 to 8 Flow 30 l/min per chamber. 4 chamber: 120 l/min 2 chamber: 60 l/min
Bench or Floor Standing	Impulse is designed to be placed on a bench
Water Supply	Not required
Drainage	Not required
Air Extraction	Not required
Conditioning	It is recommended that this instrument is operated in a conditioned atmosphere.

CE Conformity: Impulse is CE marked and is therefore compliant 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

SELECTOR TABLE

● Required
● Optional
● Not required

	Stockcode	Adidas 4.07	ASTM D3512	DIN 53867	GB/T 4802.4	ISO 12945-3	JIS L1076	NFG 07-121	NFG 07-132	SANS 6116
Impulse Random Tumble Pilling Tester Model 1666-2 or 1666-4	906-506 906-507	●	●	●	●	●	●	●	●	●

Impellers

ASTM impeller	794-650	●	●	●	●	●	●	●	●	●
ISO impeller	794-652	●	●	●	●	No Air	●	●	●	●
JIS impeller	794-656	●	●	●	●	●	●	●	●	●
DIN impeller	Available on request	●	●	●	●	●	●	●	●	●

Test Materials & Accessories

Cork Liner	393-527	●	●	●	●	●	Method D-3	●	●	●
Neoprene Liner	758-566	●	●	●	●	●	●	●	●	●
Sample Cutter 100 cm² (113 mm diameter)*	902-220	●	●	●	●	●	●	●	●	●
ASTM D 3512 Photographic Standards	766-450	● ASTM EMPA K1,K2,K3	●	●	●	●	●	●	●	●

* The ISO and the French NF allow the use of circular specimens. Typically though, most labs use the 105 mm square specimens

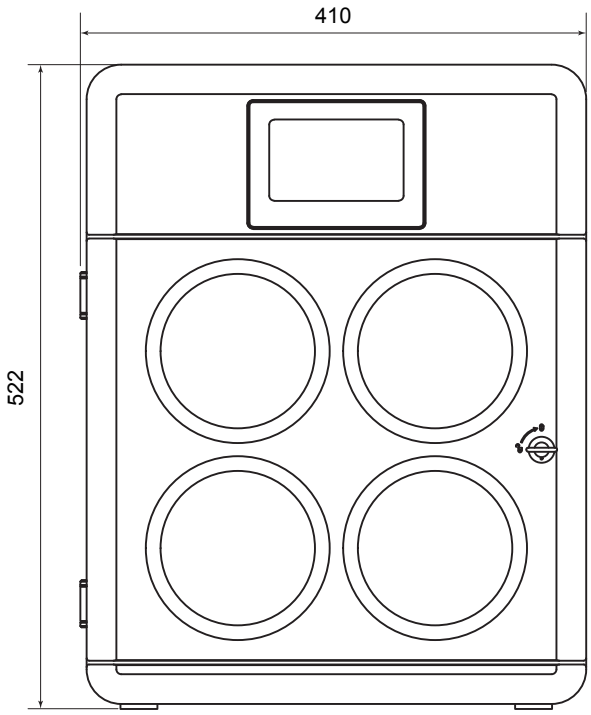
Certificate

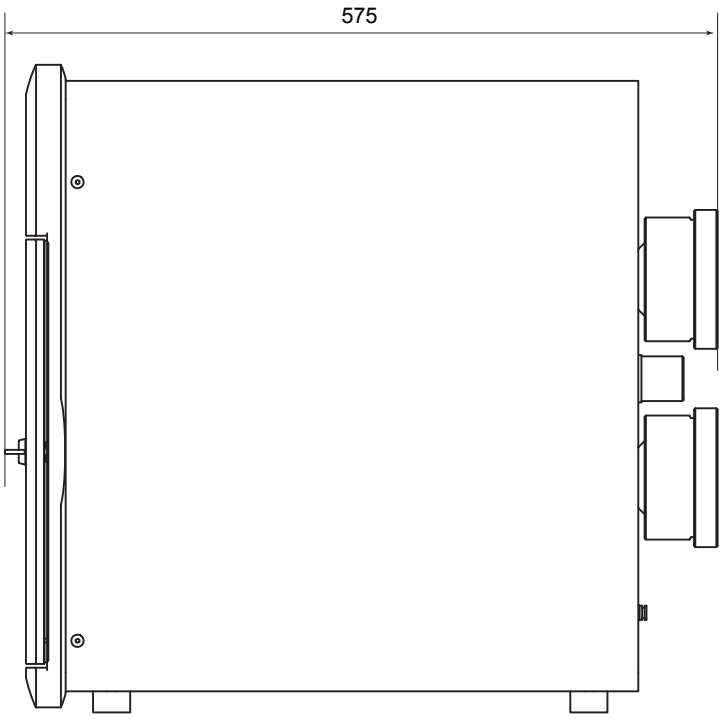
UKAS Certificate of Calibration for Impulse or Random Tumble Pilling Tester	202-816	●	●	●	●	●	●	●	●	●

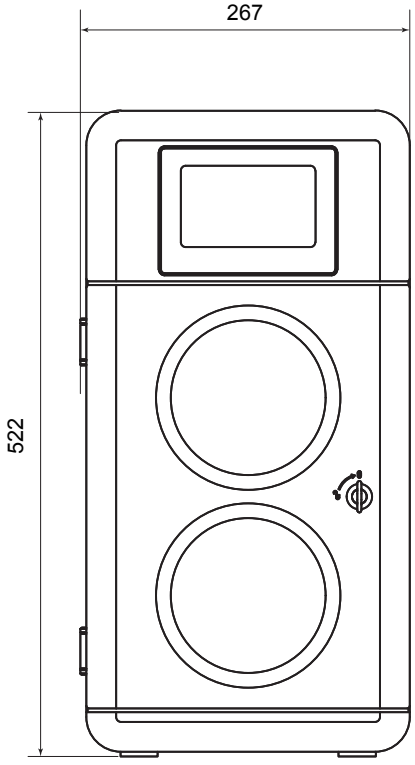
DIMENSIONS & WEIGHT

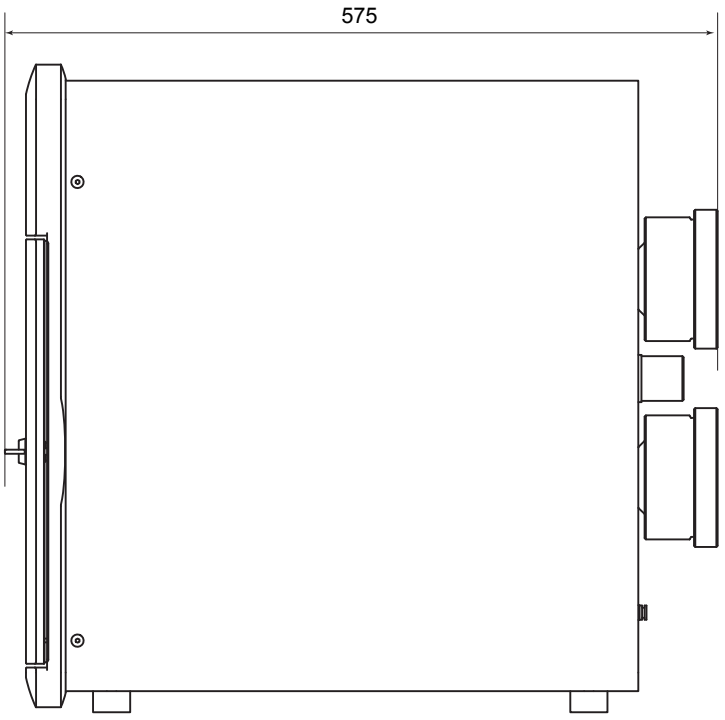
	Height (mm)	Width (mm)	Depth (mm)	Approx Weight (kg)
Impulse - 4 chamber	522	410	575	46.0 ^
Impulse - 2 chamber	522	267	575	28.0 ^

^ -- including impellers









Service & Support: It is recommended the Impulse is serviced and calibrated annually.