

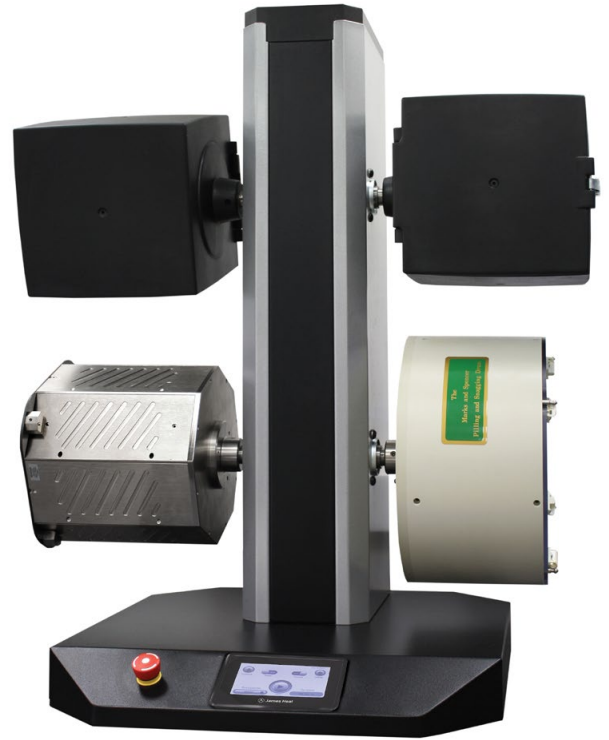


Orbitor

PILLING & SNAGGING TESTER

A consistent and reliable way to test the pilling and snagging properties of woven and knitted fabrics.

With the James Heal touchscreen, the most intuitive touchscreen for textile testing.



MODEL NUMBER: **1616/2** **1616/4**
 STOCK CODE: **901-480** **901-481**

KEY BENEFITS

INTUITIVE TOUCHSCREEN

The screen is intuitive and easy to use, enabling a new user to learn the process instantly to minimise training time

CUSTOMISABLE AND INTERCHANGEABLE

Any combination of pilling or snagging boxes can be used on both the 2 and 4 station models, to save time in between tests. Pilling boxes can be easily transformed into snagging boxes.

IMPROVED SAFETY FEATURES

The tumbling motion starts slowly to prevent user injury, and the motor stops if it detects any signs of resistance.

EASY TO CHANGE CORK LINERS

The cork liners have an improved magnetic lining, making them more stable and very easy to change.

RANGE OF TEST METHODS

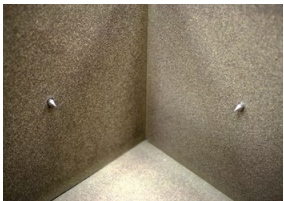
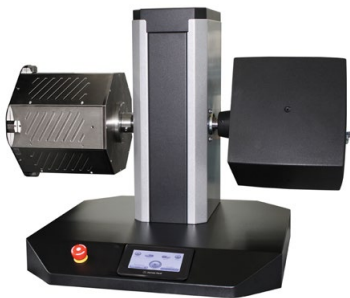
Suitable for testing to a range of standards and retailer test methods, including BS, ICI, EN ISO, M&S and The Woolmark Company.

EASY LOADING OF TEST SAMPLES

The flat central column design supports the box doors making loading test samples quick and easy.

CONSISTENT AND ACCURATE RESULTS

This method of testing provides results which are consistent and related to real life use.

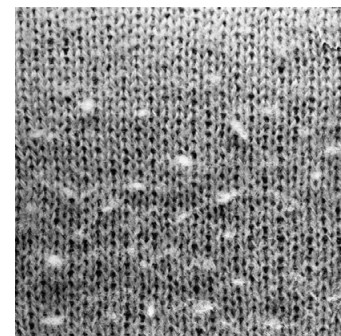


PILLING & SNAGGING

THE DEFINITION OF PILLING

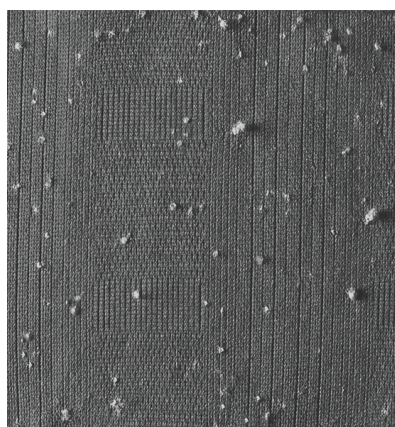
Pilling is the formation of small balls of entangled fibres on the surface of the fabric. Such surface deterioration is generally unacceptable to the consumer.

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.



THE DEFINITION OF SNAGGING

Snagging is a term used to describe undesirable surface deterioration effects such as filamentation or looping. The breaking of individual threads in a woven or knitted fabric causes the generation of this type of surface damage. Here are some use terms used in snagging tests:



Snag	An undesirable loop on the surface of a woven or knitted fabric
Protrusion	A partially formed snag
Filamentation	Filamentation is the breaking of filaments (long fibres) resulting in a hairy appearance. Loops can be formed with unbroken yarns
Pulled Thread	A thread in a fabric that is tighter than adjacent threads
Shiner	A thread that is more lustrous (and usually tighter) than adjacent threads
Indentation	A concave distortion of the fabric surface

THE TEST

PILLING

Four tubular specimens are mounted on polyurethane pilling tubes and tumbled in the cork-lined box for a specified number of revolutions. Specimens can be tested before or after a washing process.

After tumbling, the change in surface appearance of the specimen is visually assessed under controlled conditions.

Stringent quality control of the liners and the tubes is essential in order to ensure the critical demands of the standards are satisfied.

SNAGGING

Snagging differs from pilling by the inclusion of standard points fitted in either the Box or the Drum. Any tendency to form undesirable potential fabric deficiencies are highlighted as the tubular specimens randomly catches on the points.

ICI Test Method 444 modifies the cork lined box used for pilling tests by including one point in the centre of each of the six (6) sides of the box.

SnagPod, which is used for BS 8479, has four (4) rows of 20 angled pins spaced evenly inside the octagonal chamber. It is important to ensure the correct direction of the angled pins relative to the direction of rotation.

APPLICATIONS

KNITTED TEXTILES



Knitted clothing including

- Jumpers
- Cardigans
- T-Shirts

WOVEN TEXTILES



Woven fabrics including

- Shirts
- Formal trousers
- Blouses






SPORTSWEAR



Sportswear including

- Football kits
- Baselayers
- Running clothing

STANDARDS

Standards	
	EN ISO 12945-1
	ICI Test Method 444
	BS 5811 (withdrawn) BS 8479 "SnagPod"
	Woolmark TM 152
	M&S P18A M&S P18B M&S P21A

ORBITOR AT A GLANCE



INTUITIVE TOUCHSCREEN

Our designers worked closely with users and our textile technologists in our working laboratory to produce an intuitive touchscreen makes the Orbitor easy to control. The different features are easy to access and navigation is quick, which ensures the set-up of a test is very simple.

As the familiar feel of a touchscreen is similar to devices used in everyday life, users become an expert instantly.

The touchscreen offers reduced training time and increased efficiency contributing to cost reductions and an enjoyable user experience.

The touchscreen is made with toughened cover glass which has been tested to replicate laboratory wear and tear conditions.

More features of the touchscreen software can be found further in the Sales Tool Kit document.



CUSTOMISABLE AND INTERCHANGEABLE

Both the two and four station Orbitors have standard fittings to allow any combination of James Heal boxes to be attached.

This combination can be changed easily by the user, with features such as guidance arrows on the drive shaft to ensure boxes are aligned to the optimum position quickly.

The boxes are also customisable, as users are able to transform pilling boxes into snagging boxes by placing snagging points through the cork lining.

These options mean that down time can be kept to a minimum, and laboratories can increase their range of testing just through the use of this one instrument.



EASY TO CHANGE CORK LINERS

The cork liners, which fit within the pilling and snagging boxes, have enhanced magnetic qualities making them stable throughout the testing process even with the introduction of dust to the box.

They are quick and easy to fit, saving time and increasing productivity.



IMPROVED SAFETY FEATURES

The Orbitor has a range of safety features which benefit users:

- It begins to rotate slowly to allow users to stand clear safely and stop the Orbitor quickly if a door is left open.
- It also has sensors which detect any resistance to the rotation motion which stop it automatically.
- A prominent safety button on the base panel is another option for stopping the instrument quickly in case of emergency.



A RANGE OF TEST METHODS

There are three modes of rotation available to meet the testing requirements of all existing standards; 60rpm, 30rpm, and 30rpm reversing after 50 revolutions.

These easy to set speeds and the different test chamber options mean the Orbitor can perform an extensive range of tests for both standards and retailer test methods.

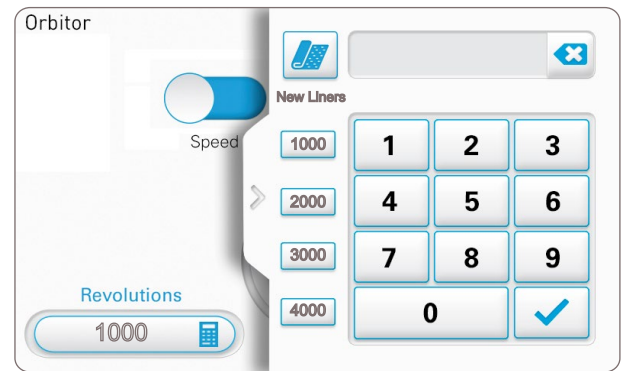
Please note that as Orbitor uses a common drive system, it is not possible to run different boxes at different speeds simultaneously.



AUTOMATED RUN IN SETTING

It is recommended that test chambers are run in for approximately 200 hours with 4 blank tubes until the linings have stopped shedding cork dust. This procedure must be repeated each time the cork liners are replaced.

The Orbitor has an automated run in setting which programmes the time and number of revolutions needed without any working out required.



EASY LOADING OF TEST SAMPLES

In comparison to other instruments on the market, the central column of the Orbitor has been designed to allow the test chamber doors to sit flat against it.

This holds the box in place and stops it from rotating, an ideal position for loading test samples.



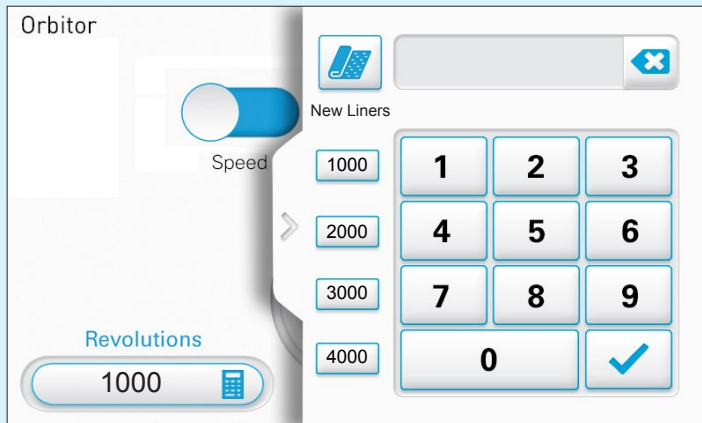
CONSISTENT AND ACCURATE RESULTS

The tumbling motion of the Orbitor replicates pilling and snagging on garments which is close to real life conditions.

The consistent and accurate results can then be graded on the ProView, as pictured.



ORBITOR TOUCHSCREEN



Simple and Efficient Test Setup

The setup of a test on the Orbitor is very simple and is consistent with all James Heal Touchscreen instruments

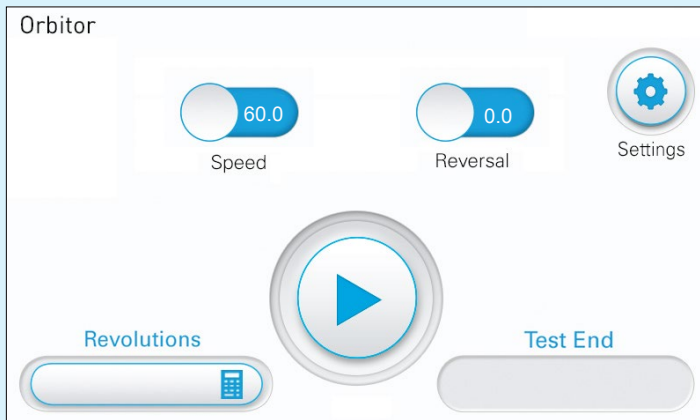
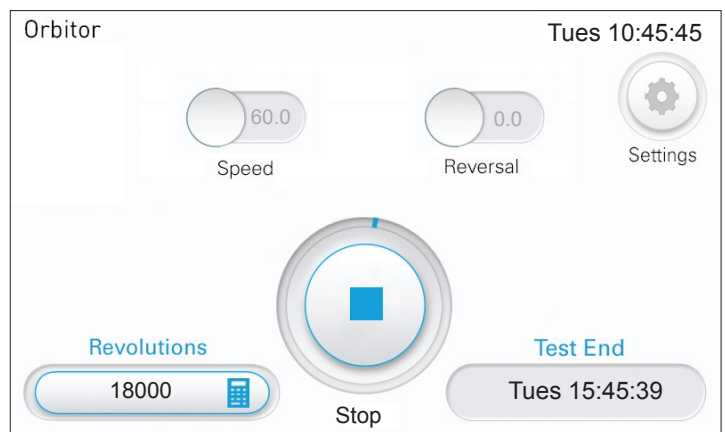
The screen is intuitive and easy to use enabling a new user to learn the process instantly, to minimise training time

End of Test Visibility

Once the test has been set up and started, the Test End time will be displayed.

The Start button will also change to a Stop button and a blue ring will move around this button to show the progress of the test.

The settings will be greyed out during the test.



Speed and Reverse

Speed and Reversal can be set by moving the toggle switches left or right.

The option that is visible is the one selected.

Easily Accessible Settings

Settings for brightness, volume, date, language and automatic restart can all be easily accessed via the Setting button

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



CORK LINED PLASTIC PILLING BOX

A cork lined box used to test the pilling qualities of both knitted and woven fabric.

Stock Code: 794-753

Height: 258mm Width: 258mm

Depth: 308mm Weight: 7.42kg



CORK LINED PLASTIC SNAGGING BOX

Similar to the pilling box, snagging points are pushed through each wall of the box to test the snagging qualities of knitted and woven fabric.

Stock Code: 794-754

Height: 258mm Width: 258mm

Depth: 308mm Weight: 7.42kg



M&S PILLING AND SNAGGING DRUM

Used to meet Marks & Spencer retailer standards, fabric is placed round the drum and on tubes to test fabric pilling and snagging against itself.

Stock Code: 788-741

Height: 352mm Width: 352mm

Depth: 243mm Weight: 6.4kg



SNAGPOD - SNAGGING RESISTANCE TESTER



James Heal led the development of the SnagPod to solve the problem of testing for undesirable loops on the surface of garments, for which a suitable method did not exist.

With the support of prominent retailers and test houses, we created a chamber which is octagonal in shape and incorporates four pinned snagging bars, which are inclined forwards in the direction of rotation. It tests for the appearance of undesirable loops on the surface of garments, and is ideal for testing woven sports fabrics such as football shirts.

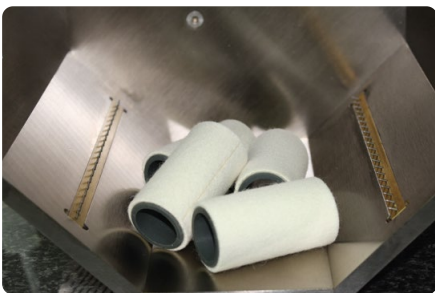
Height: 284mm	Width: 244mm
Depth: 279mm	Weight: 7.18kg

The Test

Four specimens are mounted onto felt covered tubes and tested simultaneously. The SnagPod rotates at 60rpm for 2000 revolutions, which takes only 30 minutes to complete. After testing, the specimens are graded against a series of reference photographs.

KEY BENEFITS

CONSISTENT AND ACCURATE



The SnagPod design creates a gentler snagging test which provides consistent results which are more accurate to real life.

ENGRAVED PINS FOR EASY FITTING



The snagging bars are laser marked with rotational direction, saving time by making the SnagPod easier to set up.

SUITABLE FOR SPORTSWEAR



This method of snagging testing is useful for sportswear retailers, and has been adopted by Nike and their suppliers.

STANDARDS

Standard	Retailers Test Method
BS 8479:2008	BHS TM46

RECOMMENDED STARTING KITS - PILLING ONLY

	STOCK CODE	ISO		M&S M&S P18A		M&S M&S P18B	
		2 station	4 station	2 station	4 station	2 station	4 station
1 x Orbitor Model 1316/2 230V/110V (Switchable voltage, frequency independent)	901-480	■					
2 x Cork-Lined Plastic Pilling Boxes	494-753	■					
1 x Pilling Box/Drum Test Template	772-101	■					
2 x Packs (6) Cork Liners	794-752	■					
1 x Pack (10) Rolls 19mm wide PVC Tape (colour: white)	789-511	■					
1 x VeriVide Pilling Assessment Viewer 230V 50/60Hz	708-925	■					
1 x UKAS Certificate of Calibration for Orbitor	202-516	■					
1 x Orbitor Model 1316/4 230V/110V (Switchable voltage, frequency independent)	901-481		■				
4 x Cork-Lined Plastic Pilling Boxes	794-753		■				
1 x Pilling Box/Drum Test Template	771-101		■				
4 x Packs (6) Cork Liners	794-752		■				
2 x Packs (10) Rolls 19mm wide PVC Tape (colour: white)	789-511		■				
1 x VeriVide Pilling Assessment Viewer 230V 50/60Hz	708-925		■				
1 x UKAS Certificate of Calibration for Orbitor	202-516		■				
1 x Orbitor Model 1316/2 230V/110V (Switchable voltage, frequency independent)	901-480			■			
2 x Drums	788-741			■			
1 x Pilling Box/Drum Test Template	772-101			■			
1 x Pack (5) Liner Supports	788-742			■			
1 x Pack (10) Double-sided Adhesive Tape	789-513			■			
1 x Holoscope 230V 50/60Hz	708-917			■			
1 x Knitted Hologram	708-915			■			
1 x Woven Hologram	708-914			■			
1 x UKAS Certificate of Calibration for Orbitor	202-516			■			
1 x Orbitor Model 1316/4 230V/110V (Switchable voltage, frequency independent)	901-481				■		
4 x Drums	788-741				■		
1 x Pilling Box/Drum Test Template	772-101				■		
2 x Packs (5) Liner Supports	788-742				■		
2 x Packs (10) Double-sided Adhesive Tape	789-513				■		
1 x Holoscope 230V 50/60Hz	708-917				■		
1 x Knitted Hologram	708-915				■		
1 x Woven Hologram	708-914				■		
1 x UKAS Certificate of Calibration for Orbitor	202-516				■		
1 x Orbitor Model 1316/2 230V/110V (Switchable voltage, frequency independent)	901-480					■	
2 x Drums	788-741					■	
1 x Pilling Box/Drum Test Template	772-101					■	
1 x Pack (5) Liner Supports	788-742					■	
1 x Pack (10) Double-sided Adhesive Tape	789-513					■	
1 x Holoscope 230V 50/60Hz	708-917					■	
1 x IWS Pilling Photographs SM54 for knitted fabrics	766-460					■	
1 x UKAS Certificate of Calibration for Orbitor	202-516					■	
1 x Orbitor Model 1316/4 230V/110V (Switchable voltage, frequency independent)	901-481						■
4 x Drums	788-741						■
1 x Pilling Box/Drum Test Template	772-101						■
2 x Packs (5) Liner Supports	788-742						■
2 x Packs (10) Double-sided Adhesive Tape	789-513						■
1 x Holoscope 230V 50/60Hz	708-917						■
1 x IWS Pilling Photographs SM54 for knitted fabrics	766-460						■
1 x UKAS Certificate of Calibration for Orbitor	202-516						■

ORBITOR INSTRUMENTS & ACCESSORIES

Single Instruments

2 Station Orbitor	4 Station Orbitor
901-480 1 x Orbitor Model 1616/2 230V/110V (Switchable voltage, frequency independent) 2-Position Instrument Standard accessory: 1 x Specimen Mounting Jig 794-521	901-481 1 x Orbitor Model 1616/4 230V/110V (Switchable voltage, frequency independent) 4-Position Instrument Standard accessory: 1 x Specimen Mounting Jig 794-521

Test Chambers

Code	Name	Standard Accessories
794-753	Cork-Lined Plastic Pilling Box	1 pack of 4 Moulded Polyurethane Pilling Tubes (140.25mm long) (758-555) 1 x Roll 19 mm wide PVC Tape (789-511) (colour: white)
794-754	Cork-Lined Plastic Snagging Box	6 x Snagging Pins (fitted) (511-545) 1 pack of 4 Moulded Polyurethane Pilling Tubes (140.25mm long) (758-555) 1 x Roll 19 mm wide PVC Tape (789-511) (colour: white)
788-741	Pilling Drum	3 x Packs (4) Moulded Polyurethane Pilling Tubes (70.2mm long) (758-551) 1 x Ramp (788-743) 1 x Liner Support (788-742) 1 x Pack (20) Locking Rings (758-553) 1 x Roll Double-sided Adhesive Tape (789-513)
794-523	Snagging Kit for Pilling Drum	3 x Pinned Bars (789-361) 2 x Bead Bags (785-251)
794-726	SnagPod (BS 8479:2008 & BHS TM46)	2 x Packs (4) Felt-covered Polyurethane Tubes (758-554) 1 x Pack (20) Locking Rings (758-553) 1 x Specimen Template (772-121) 1 x Pack (10) Fixing Screws for Snagging Bars (319-152) 1 x Assessment Mask (766-480)
201-933	ISO Certificate of Calibration for SnagPod	

Test Templates

Stock No.	Name
772-101	Pilling Box/Drum Test Template
772-102	Snagging Box Test Template
772-107	Snagging Drum Test Template

Calibration

Stock No.	Name
202-516	UKAS Certificate of Calibration for Orbitor



**Moulded Polyurethane Pilling
Tubes - 70.2mm Long**
Stock Code: 758-551

TEST MATERIALS & SPARES

2-year Spares Kit for Orbitor

Stock No.	Name
160-336	E-Stop Series 84
195-348	480V Metal Oxide Radial Varistor (3)
130-827	Fuse 0.125A Fast 20x5mm MCF05G

Spares and Consumables for SnagPod

Stock No.	Name
794-824	Snagging Bar (Pack of 4)
319-152	Fixing Screws for Snagging Bars - per pack (10)
758-554	Felt-covered Polyurethane Tubes - per pack (4)
758-553	Pack (20) Locking Rings - per pack (20)
766-455	SnagPod Reference Photographs - per set (9)
772-121	Specimen Template
766-480	Assessment Mask

Spares for Pilling or Snagging Boxes

Stock No.	Name
794-752	Cork Liners for Pilling Boxes (mounted on steel plates) - per set (6)
794-746	Cork Liners for Snagging Boxes (mounted on steel plates) - per set (6)
794-521	Specimen Mounting Jig (Stand, Tube and Plug)
758-555	Moulded Polyurethane Pilling Tube (140.25mm long) - per pack (4)
789-511	Rolls of 19 mm wide PVC Tape (colour: white) - per pack (10)
511-545	Snagging Points for one Plastic Pilling Box - per set (6)

If snagging parts are purchased to convert a box from pilling to snagging, a set of Cork Liners 794-746 should also be ordered.

Spares for Pilling Drum

Stock No.	Name
794-824	Snagging Bar (Pack of 4)
319-152	Fixing Screws for Snagging Bars - per pack (10)
758-554	Felt-covered Polyurethane Tubes - per pack (4)
758-553	Pack (20) Locking Rings - per pack (20)
766-455	SnagPod Reference Photographs - per set (9)
772-121	Specimen Template
766-480	Assessment Mask

Spares for Snagging Kit for Pilling Drum

Stock No.	Name
785-251	Bead Bag - each
789-361	Pinned Bars - each



Felt-covered Polyurethane
Tubes
Stock Code: 758-551

YOU MAY ALSO WANT...

ProView

PILLING & SNAGGING TESTER

Simple and Efficient Grading

ProView makes the grading process easy and efficient with access, via a 'swipe' of the integrated 7" touch screen, to a library of photographic assessment images.

Images for assessing testing done on the Orbitor, including the SnagPod, are available on the ProView.



Pre-loaded Images

Item	No. of Images
ASTM D 3939 Mace snagging	9 images
SnagPod (complies with BS8479:2008 and BHS TM46)	9 images
BS 5811:1979 & M&S - Woven	5 images
BS 5811:1979 - Single jersey	5 images
BS 5811:1979 - Double jersey	5 images
SM 50 for woven fabrics - Martindale - Plain Weave	5 images
- Twill Black	5 images
- Twill White	5 images
- Woven Blanket	5 images
SM 54 for knitted fabrics - Pilling box - Botany Knitted	5 images
- Double Jersey	5 images
- Lambwool Knitted	5 images
- Shetland Knitted	5 images
EMPA Pilling Standard Photographs - Woven - W1	4 images
Produced in agreement with Swissatest - W2	4 images
- W3	4 images
EMPA Pilling Standard Photographs - Knitted - K1	4 images
Produced in agreement with Swissatest - K2	4 images
- K3	4 images
M&S Pilling	5 images

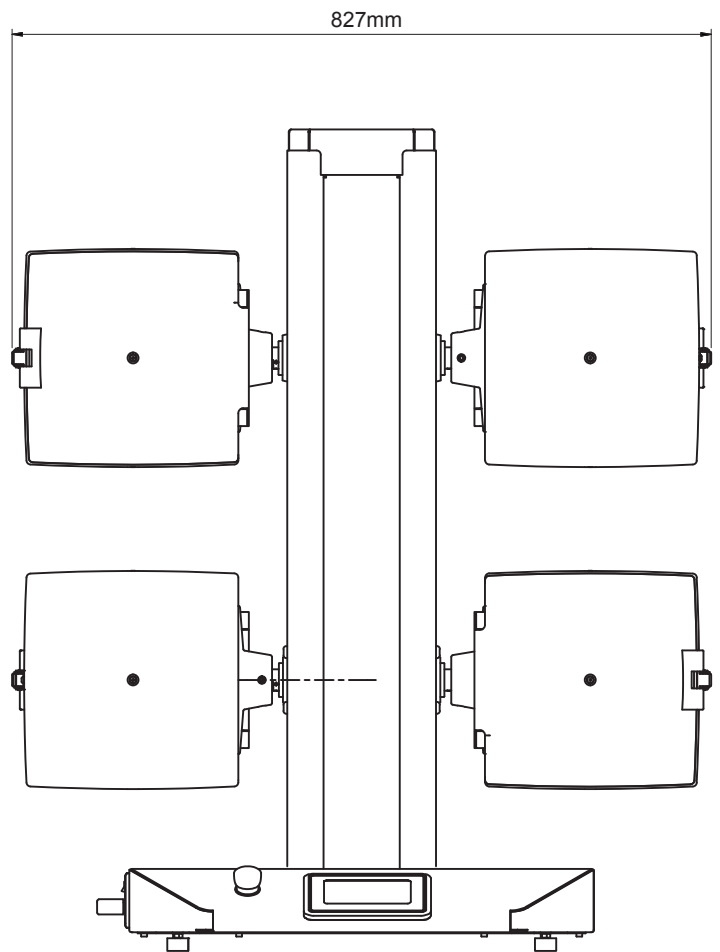
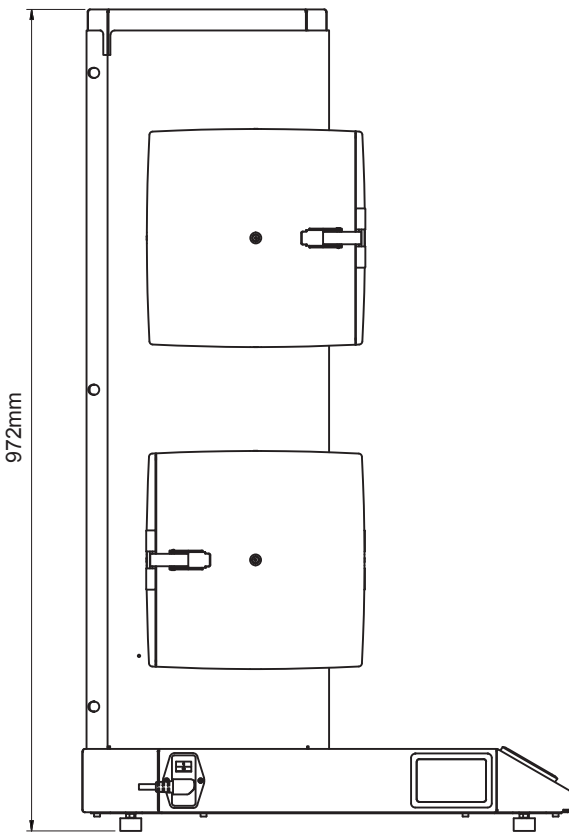
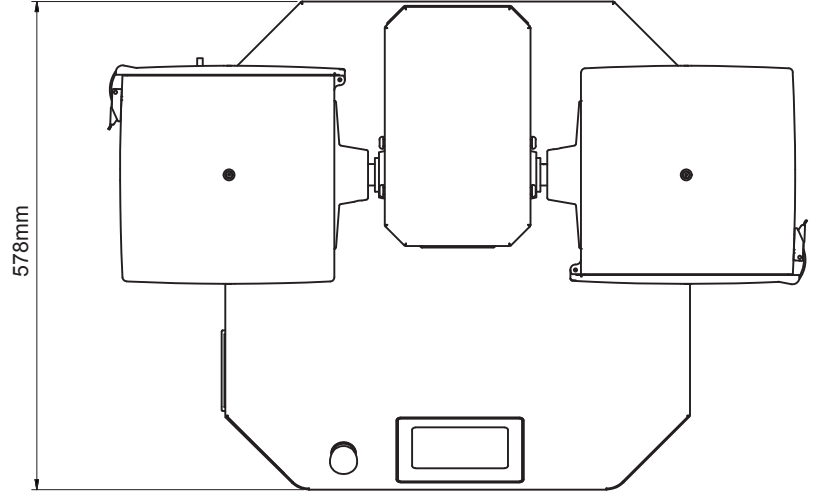
Stock Codes

Stock No.	Name	Comprising of:
901-475	ProView Universal Assessment Viewer	1 x ProView Universal Assessment Viewer - model 1523 1 x CD Op Guide ProView 297-030 1 x Mains Lead Set - Angled 142-326 2 x Fuse 1A T 20x5mm 130-825 1 x Cover Plate - Blank 513-122 1 x Masking Plate - Abrading 513-123 1 x Sample Carrier - ProMace 513-124 1 x Mask - ProMace Sample 513-125

DIMENSIONS & WEIGHT

4 STATION ORBITOR

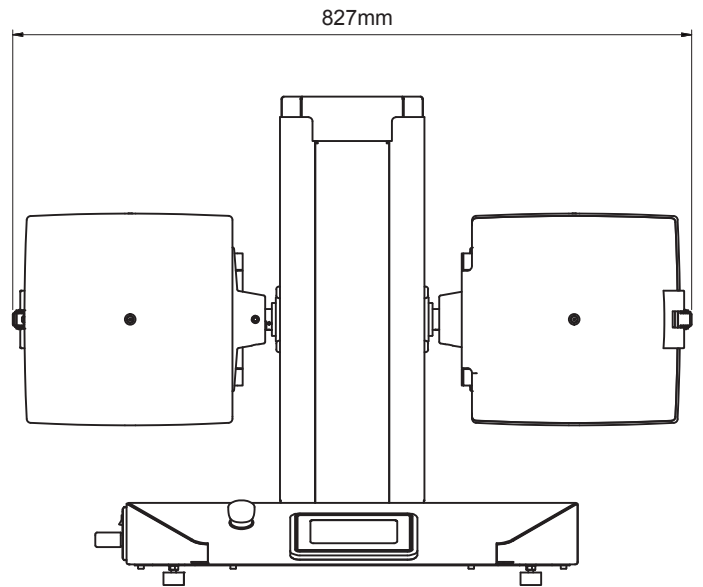
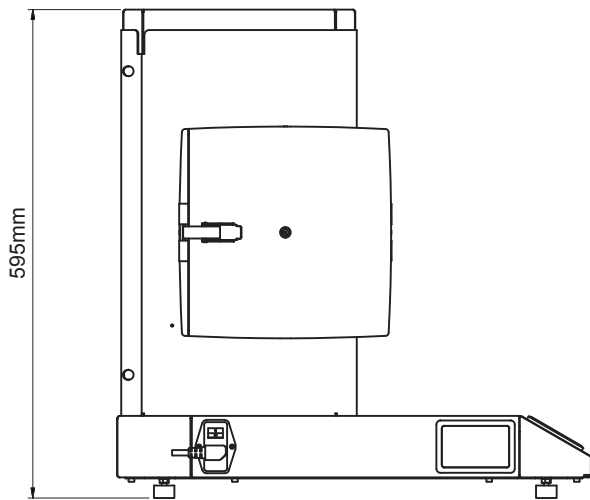
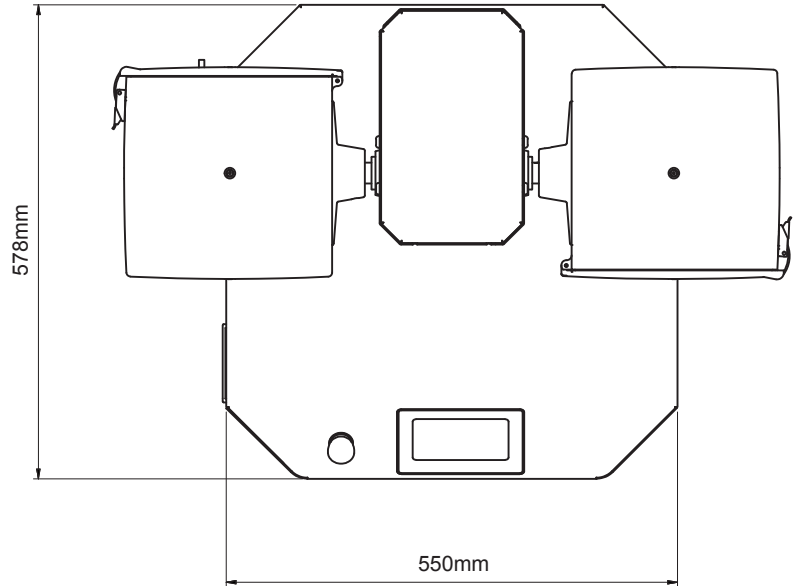
Dimensions (mm)	Height	Width	Depth	Approx Weight (kg)
	972	550	578	31 (without boxes)



DIMENSIONS & WEIGHT

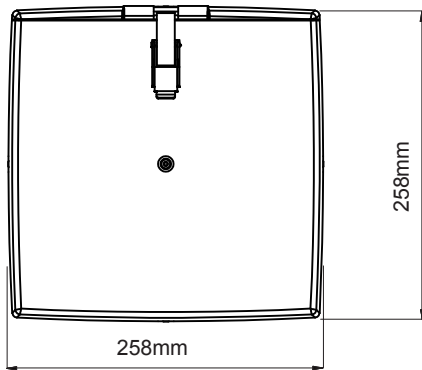
2 STATION ORBITOR

Dimensions (mm)	Height	Width	Depth	Approx Weight (kg)
	595	550	578	23.5 (without boxes)

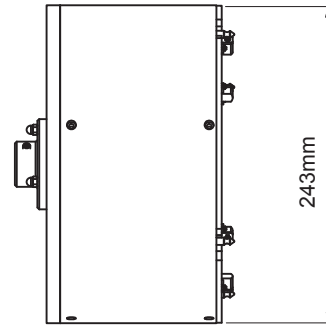


DIMENSIONS & WEIGHT

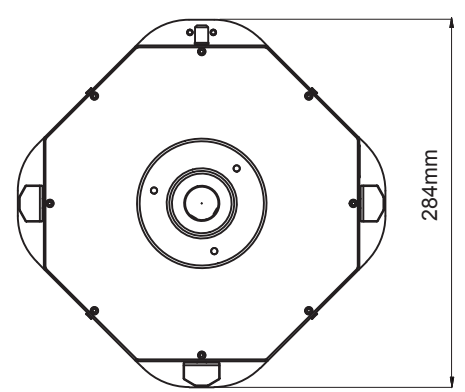
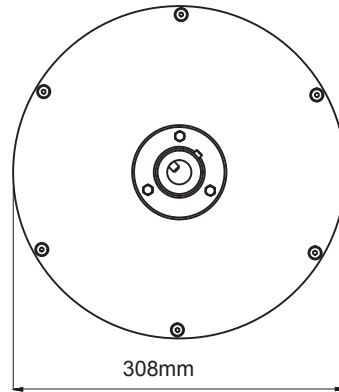
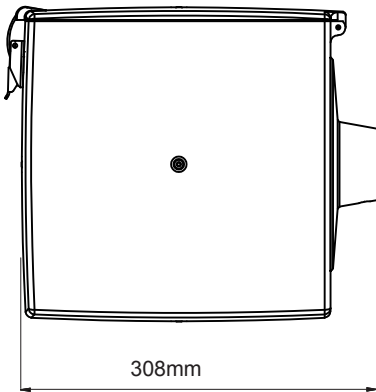
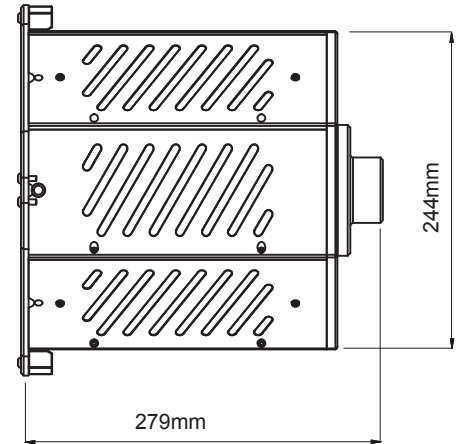
PLASTIC PILLING & SNAGGING BOX



M&S PILLING & SNAGGING DRUM



SNAGPOD



INSTALLATION GUIDE

Item	Comment
Electricity	85 to 264V AC 50/60Hz Single Phase 0.5 / 1 A 40 W
Air	Not required
Bench or Floor Standing	Orbitor is designed to be placed upon a bench
Water Supply	Not required
Drainage	Not required
Air Extraction	Not required
Conditioning	It is recommended the instruments are located within a conditioned atmosphere.

CE Conformity: Orbitor 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