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## **COMPANY OVERVIEW**

For more than 75 years, Cerulean has been synonymous with the supply of precision test and measurement solutions. Specifically, we manufacture and service smoking and analysis instruments used in tobacco laboratories worldwide.

Cerulean's success is built on positive customer partnerships and the ability to create industry-centred products of both quality and relevance. Continually releasing new devices and innovative solutions, Cerulean is positioned at the forefront of technology and industry requirements, ensuring that the solutions of tomorrow are always developed with customers' needs in mind.

Cerulean is part of Coesia, a group of innovation-based industrial solution companies operating globally, with headquarters in Bologna, Italy.



## **BROCHURE INTRODUCTION**

## Introduction

Cerulean is a world leader in the design and manufacture of smoking machines, used to create and capture smoke aerosols for chemical analysis under controlled conditions.

For optimal operation, these machines require an array of mechanical and electronic accessories, spares kits and general consumables. In addition, developments in the industry are continuously driving innovation of Cerulean machines, thus resulting in a growing range of upgrades and new ancillary products.

This brochure is a compilation of aftersales products for use with Cerulean's linear and rotary smoking machines.\*

## **Aftersales**

Cerulean has a worldwide team devoted to delivering excellent aftersales operations with service engineers in all corners of the globe managed by regional service managers located strategically close to your locations.

Please contact our service team if you require assistancewith any of the following:

- Initial setup such as site survey, installation, commissioning, warranty extension or machine qualification.
- Routine maintenance such as hardware and software support including service contracts and remote assistance.
- Overhaul including upgrading or customisation, onsite or base repair, upgrades, retrofits, re-qualification or calibration.
- Technical support and product training.

<sup>\*</sup>Current as of September 2023

## **SMOKING PRODUCT RANGE**

Cerulean SM4xx and Orbit rotary machines allow you to validate your product designs and ensure compliance with market regulations. All our smoking machines can be configured to meet your specific requirement with a full range of upgrade options and analysis available.



## **SM450**

The **SM450** is a manually operated 20-port linear smoking machine complying with the design requirements of ISO 3308 and ISO 20778.



## **SM410**

The **SM410** is a manually operated 10-port linear smoking machine complying with the design requirements of ISO 3308 and ISO 20778.



## SM450i

The **SM450i** is a semi-automated 20-port channel linear smoking machine complying with the design requirements of ISO 3308 and ISO 20778.



## **SM405**

The **SM405** is a manually operated 5-port linear smoking machine complying with the design requirements of ISO 3308 and ISO 20778.

## **ORBIT20**

The ORBIT20 is a semi-automatic 20-port rotary smoking machine designed to comply with ISO 3308 and 20778. Automated systems incorporated into the design ensure repeatable lighting & puffing.



## **SM450CV**

The SM450-CV is a manually operated 20-port linear smoking machine designed for smoking cigars, specifically to CORESTA recommended methods NO.64, NO.65, NO.66 and NO.67.



## **SM405SV**

The SM405-SV is a manually operated 5-port linear smoking machine designed for capturing side-stream smoke, specifically to CORESTA recommended methods NO.54 and NO. 55.





## **SM410CV**

The SM410-CV is a manually operated 10-port linear smoking machine designed for smoking cigars, specifically to CORESTA recommended methods NO.64, NO.65, NO.66 and NO.67.



## **SM450RH**

The SM450RH is a manual linear smoking machine that offers efficiency for routine methods and flexibility for non-routine research. It can smoke ISO, Canadian, and Massachusetts methods without reducing throughput.

## **UPGRADES & ACCESSORIES**

## **Upgrades**

Equipment upgrades are designed to improve capabilities of your Cerulean machine. A machine upgrade can be a cost effective means of improving laboratory capability without the expense of a whole new machine.

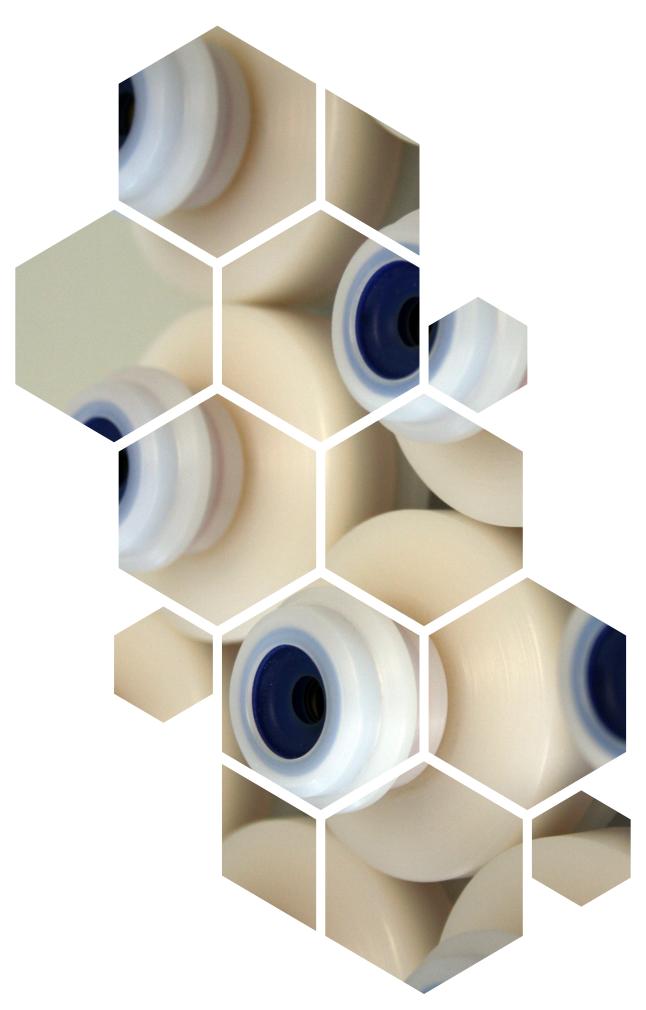
Every upgrade has been designed to increase the longevity of your equipment by supporting new applications or by mitigating against critical hardware or software obsolescence. In most cases, the upgrade also provides improvements to standard features, new functionality or easier serviceability.

Often a new capability requirement or process change will trigger an upgrade to an existing Cerulean smoking machine. Cerulean machine upgrades provide an opportunity for you to overhaul your machine, giving it a new lease of life, which can include several of the following benefits:

- Improved data records through digitization
- Improved productivity with reduced down time
- Increased analytical capability for emerging products

## **Accessories**

Accessories are products that are sold either with new machines or after-sale to be fitted on existing machines. These are additional components or attachments that you need to get enhanced functionality or to improve specific operations. For example, impinger kits for carbonyl capture.



## **SM4XX & ORBIT 20 UPGRADES**

#### **CO and NOx Analysers**

Upgrade Name:	Gas	Stock Code	Instruments	
Horiba 10% v/v Upgrade	CO	93961	SM405, SM410, SM450, SM450 RH	
Horiba 15% v/v Upgrade	CO	93960	SM410CV, SM450CV	
Horiba Dual Range Upgrade 10% v/v and 2000ppm	CO	93963	SM405, SM410, SM450, SM450RH	
Horiba Dual Gas	CO & CO2	93964	SM405, SM410, SM450, SM450RH	
NOx Analyser	NOx	99323	SM450	

Cerulean offers a range of analysers that can be offered for the complete range of smoking machines. The upgrade requires the machine to have Windows 10 software installed. The analysers can be controlled from the Cerulean application software.



#### Windows 10 Software

Instruments: SM410, SM405 SM450SV, SM410CV, SM450, SM450RH, SM450i, SM450CV

Upgrade	Stock Code
Windows 7 to Windows 10	99282
Windows XP to Windows 10	93256

The Windows 10 application software, is provided as a field upgrade kit for Cerulean machines and consists of hardware and software which enable users to enjoy all the benefits of recent innovations introduced by Cerulean. Older windows versions are no longer supported by Microsoft and may lack some security features present in later versions



#### 21 CFR Part 11

Instruments: SM410CV, SM410, SM450SV, SM450, SM450RH, SM450i, SM450CV, Orbit20, SM405

Upgrade	Stock Code		
21 CFR Part 11 for SM4xx	93577		
21 CFR Part 11 for Orbit 20	93492		

The 21 CFR is a software package that is required for work on projects that fall under the jurisdiction of the US FDA. It provides audit functions, secure data capture and storage as well as other elements needed for laboratory wide implementation of 21 CFR Part 11 compliant processes.



#### **ORBIT 20 requalification**

Upgrade Name:	Stock Code	Instruments
GxP Package	13828	SM450
GxP Package	13774	SM450i
GxP Package	13895	Orbit 20

GLP (Good Laboratory Practice) is a term coined by the US FDA which refers to guidelines and regulations meant to ensure some categories of consumer products follow quality and safety processes.

The GLP package includes:

- IQ (installation qualification)
- OQ (operational qualification)
- PQ (performance qualification

Requires service visit

#### **Electrostatic Precipitator Trap**

Instruments: SM4xx

Upgrade	Stock Code	
Standalone ETS for SM4xx	99259	
5 channel ETS for SM4xx	99321	
ETS for Orbit 20	99260	

The ETS provides the means to collect particulate matter and condensate from cigarette smoke. Electrostatic trapping is the preferred method for collecting trace levels of heavy metals.



## **SM4XX & ORBIT 20 ACCESSORIES**

#### **Volume indicators**

Accessories Name:	Stock Code	Instruments
Bubblemeter 1 - 50 ml	91024	SM405, SM405SV, SM410,
Bubblemeter 34 - 46 ml	91464	SM410CV, SM450,
Bubblemeter 40 - 80 ml	91469	SM450RH, SM450CV,
Bubblemeter 60 - 150 ml	91466	SM450i, ORBIT 20
Bubblemeter 500 - 560 ml	93561	SPS-Shisha

Volumetric burettes, are used to verify puff volumes for ISO smoking and are easily connected to Cerulean smoking and vaping machines. The operator produces a soap film and adjusts it's position to zero using the volume valve. When a puff is produced by the machine, the soap bubble is moved up the scale of the burette by the corresponding amount and the volume of this puff can be directly read.





#### VPS104D

Instruments: SM410CV, SM405, SM450SV, SM410, SM450, Orbit 20, SM450RH, SM450i, SM450CV The measurement of Air Velocity is essential for setting up a smoking machine to ISO standard 3308. The VPS104D provides a robust and accurate measurement of air velocity. **Stock Code: 99872** 



#### HAVE YOU VISITED OUR SPARES SITE?

**Scan the QR code** to visit our spares and consumables website. Here you can find popular consumables, spares, and upgrades for your Cerulean instruments.



#### VFA450RH

Instruments: SM410CV, SM405, SM450SV, SM410, SM450, Orbit 20, SM450RH, SM450i, SM450CV The VFA450RH is an accessory which is employed when records of puff profiles are required, it can also be used as a secondary measurement device for puff volumes. **Stock Code: 99459** 

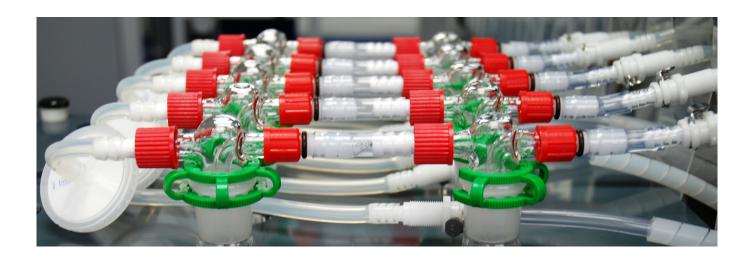
#### **Hoffmann Accessories**

Use the QR code to be directed to Cerulean's page on Hoffman Kits where you'll be able to access the 'Hoffmann impinger kit selection tool', this easy to use form will guide you through the process of creating your specific, customised, impinger kit for use with your Cerulean instrument.



Cerulean Hoffmann impinger kits are glassware componets and holders that are used to capture a variety of compound classes found in cigarette smoke. The compund classes include carbonyls, volatiles, ammonia, phenols, hydrogen cyanide and trace metals.

In the case of the SM4xx, the accessory shelf needs to be fitted to the rear machine in order to be used with various glass holding baskets. For each channel in use, one, two or three impingers can be connected in line to the smoke extraction tubes. An alternative basket for use with Dewar flasks is available and there is an option for suck back traps.

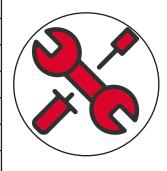


## **SERVICE KITS & SPARE PARTS**

In order to carry out maintenance, repairs, and overhaul machines in the field, Cerulean holds a large array of spare parts and kits. These are classed into several categories as follows:

#### **Essential Spares**

Stock Code
93158
93177
90682
93163
90654
90654
94148
91861
91699



Essential spares kits are made up of components without which the continuous operation of your machine cannot be ensured. For example, the kit may include gaskets, lubricants and other parts intended for the normal periodic maintenance of the machine.

#### **Recommended Spares**

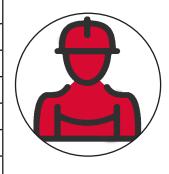
Instrument Name:	Stock Code
SM405	93159
SM405SV	93178
SM410	90683
SM410CV	90683
SM450	90655
SM450RH	90655
SM450CV	94149
SM450i	91864
ORBIT20	91698



Recommended spares kits are parts likely to be needed during an unplanned service engineer visit and that are difficult to source at short notice. Cerulean recommends you keep a kit on site and replenish it whenever any part is used.

#### **Service Kits**

Instrument Name:	Stock Code
SM405	91787
SM405SV	53399
SM410	53390
SM410CV	53504
SM450	53389
SM450RH	53423
SM450CV	53423
SM450i	91868
ORBIT20	93378



The annual service kits are made up of the necessary components and procedures required during a yearly service. These components are parts that are prone to wear and tear and therefore Cerulean recommends be changed at defined regular intervals. For example, the service kit can include seals, filters, foams, tubing connectors, cabling accessories, solenoid valves, as well as components necessary to service specific subassemblies such as the air supply, puff engine, and gas analysers if fitted.

#### **Consumable Spares**

Instrument Name:	Stock Code
SM405	93603
SM405SV	93603
SM410	93608
SM410CV	93608
SM450	93614
SM450RH	93618
SM450CV	93628
SM450i	91860



During its operation, your machine will run through many test cycles and will therefore consume Cambridge Filter holders, filter pads, labyrinth seals, neoprene bumpers, etc. It will also need a fresh supply of gas collection bags and other aerosol conduit perishables such as tubing, in-line filters silencers, O-rings, etc. Cerulean offers many of these items individually or as kits specifically designed for your machine application and number of channels.

## **CERULEAN SERVICES**

From the moment you take delivery of your Cerulean machine and up until you decide to retire it from operation, you can benefit from a range of Cerulean service products designed to keep the machine running in optimum condition. The services include warranty repairs during the first year following your purchase, regular or annual maintenance, scheduled or unscheduled site visits, remote assistance and a host of other activities such as software and firmware updates, upgrades, calibration, etc.

In order to deliver these services and ensure continuous customer satisfaction, Cerulean has a world-class aftersales team focused on the quality, efficiency, and personalization of these offerings. In addition, Cerulean is introducing new digital platforms to make services more accessible and convenient, enabling you to access services anytime, anywhere.

## **Service Contracts**

During the first year of service, your machine is covered by warranty. In subsequent years, you can benefit from Cerulean service contracts to keep your machine at optimum operation. Under these service-level agreements (SLAs), Cerulean undertakes to provide certain services such as the annual service in addition to an agreed number of maintenance visits, supply the necessary service kits, provide remote technical assistance as well as access to information and training resources.

## **Annual Service**

Cerulean annual service is performed by an expert factory-trained engineer. This ensures that you:

- · Avoid future repairs as problems are spotted early.
- Increase the service life of your machine.

Most importantly an annual service ensures that your machine is up to date with all the latest software fixes, hardware updates as well as the latest safety improvements, in particular, piece of mind that your puff engines and exhausts are well maintained and any risks of leaks are eliminated.

## **XpertWorldAssist**

XpertWorldAssist is Cerulean's technical support. It is a service specifically designed to mitigate unplanned downtime that could affect your equipment. The service enables our technical support staff to work with operators or equipment at your site using state-of-the-art technologies. This ensures quick and efficient troubleshooting in a cost-effective way.

Remote support can be delivered in various ways such as telephone, e-mail or other messaging service. It may also be in the form of a remote login on your machine, as an interactive augmented reality video or by using any tool that is approved by your organisation. In all cases, the guidance session can be recorded and used for future reference.

Package	Stock Code	Hours	Maximum weekly hours	
Basic	96011	5 5 hours / 5 days		
Silver	96000	10	8 hours / 5 days	
Gold	96002	20	8 hours / 5 days	
Platinum	96004	40	16 hours / 5 days	
Installation	96008	(40 max)	40 hours / 5 days	





## **Installation & Commissioning Service**

Installation is usually ordered with a new machine and may include other add-ons such as IQ/OQ or 21CFR Part 11. Information about these add-ons is available in the Upgrades and Accessories part of this brochure.

## **Decommissioning & Relocation**

After years of operation, your equipment may need to be relocated to new facilities to continue in service or it may need to be decommissioned to make room for a new machine. In either case, Cerulean has ample experience in the provision of such services and can fully manage your projects helping you save time and cost compared to using internal resources.

## **Spares Website**

Cerulean has launched a new and improved Spares Finder website with more than 2000 items now available for you to request customized quotations for as well as the ability to add these items to your quotation basket.

Minumum order quantity applies to consumable p



# **Keeping up with the times**Our next generation of instruments



In a world where all markets are dominated by trend culture and continuous technological advancements, companies must continue to adapt and adjust. Cerulean have done just that. The emerging market of Next Generation Products has been effectively catered to through a multitude of brand new technology.

Segment and capsule testing on the Quantum Neo x-ray, through to vaping devices and pouch testing. To tend to all modern forms of tobacco and nicotine consumption.

Contact your regional Cerulean sales manager for more information, or visit our website to browse our extensive range of testing solutions.

World-wide support; we are your global, local supplier.

## **CONSUMABLES**

Cerulean smoking machines are used to collect constituents of cigarette and smoke. The machines, therefore, utilise an extensive array of consumables\*.









Selection of Labyrinth Seals

Labyrinth Seals and Neoprene Bumpers

Dimensions		Labyrinth Seal		Neoprene Bumper Washers	
Diameter Range			Stock Code x100	Inner dia. (mm)	Stock Code x100
4.50 - 5.49	14.10 - 17.25	Yellow	66354	2.5	66350
5.60 - 6.49	17.25 - 20.06	Orange	66355	3.0	66351
6.50 - 7.49	20.06 - 23.50	Green	66356	3.5	66352
7.50 - 9.00	23.50 - 28.30	Blue	66357	4.0	66353









Selection of oval Labyrinth Seals

Sample Ovality		Colour	Labyrinth Seal
Large dia. (mm)	Small dia. (mm)	Colour	Box x40
8 to 10	3 to 4	Yellow	66212
8 to 10	4 to 5	Orange	66213
8 to 10	5 to 6	Green	66214
10 to 12	3 to 4	Black	66215
10 to 12	4 to 5	White	66216

## Cambridge Filter Holders

CFH and Cambridge Filters		CFH Assembly	Cambridge Filter Pads	
Instrument	Pad Size	Stock Code	Per Box	Stock Code
SM4XX	44 mm	33569	960	41330
	55 mm	66301	100	41480



33569 - 44 mm CFH Assy





66301 - 55 mm CFH Assy LA0146 - 92 mm CFH Assy

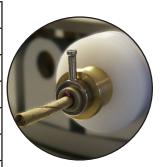
## ORBIT20

ORBIT20 Special Parts List		
Description:	Stock Code	
Low dead-volume 92 mm CFH	MN0113	
Lipseal holder conventional kit	MN0167	
1/4 turn tool	MN1301	
1/4 turn seal cap (20 off)	MN1300	



#### **Holders for Bidi products**

Description:	Stock Code
Bidi holder kit - 20 off	99300
Bidi holder kit - 1 off	99301
Bidi Sleeve Latex 4.3ID X 22 Long	KU0358
Bidi Sleeve Latex 4.7ID X 22 Long	KU0360
Bidi Holder Hand Evacuation	53020
Bidi Holder O-Ring	66320

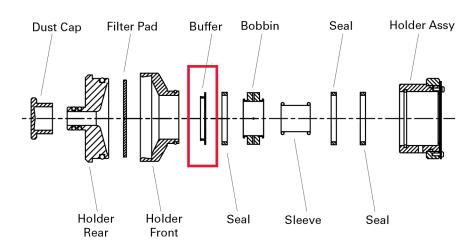


99301 - Bidi holder

The Bidi holder is fitted with flexible sleeves that are expanded using a vacuum via a small side port. The Bidi can be inserted into the holder and when the vacuum is removed the sleeve closes around the end of the Bidi making a seal.

### **Buffers for cigar products**

Description: Buffers	Stock Code
Buffer for Cigars 6.5dia to 16.5dia (6mm Dia Hole)	65358
Buffer for Cigars 6.5dia to 16.5dia (8mm Dia Hole)	65359
Buffer for Cigars 6.5dia to 16.5dia (10mm Dia Hole)	65360
Buffer for Cigars 6.5dia to 16.5dia (12mm Dia Hole)	65361
Buffer for Cigars 6.5dia to 16.5dia (14mm Dia Hole)	65362
Buffer for Cigars 6.5dia to 16.5dia (16mm Dia Hole)	65363
Buffer for cigars 14mm	65364
Buffer for cigars 16mm	65365
Buffer for cigars 18mm	65366



#### Holders for cigar products

Description: Filter Pad Holder - Front and Rear	Stock Code
Filter holder assembly for cigars 6.5dia to 16.5 dia (Standard)	66880
Filter holder assembly for cigars 16.5dia to 22.5dia (Standard)	66882



To perform experiments on cigar products, alternative sample holders are required. Cigar holder assemblies are comprised of a filter pad holder, holder assembly, buffer, bobbin, sleeve and holder assembly and can be tailored for specific product sizes. There is a large range of accessories and consumables depending on the size of your Cigar product.

We encourage you to discuss your specific application with your local cerulean representative.

#### **CM9 Monitor Test Pieces**

Description: CORESTA Monitor Test Pieces CM9	Stock Code
CORESTA Monitor Test Pieces CM9 in Cartons of 5,000 Pieces	91135
CORESTA Monitor Test Pieces CM9 in Cartons of 1,000 Pieces	91136

As of February 2019, CORESTA "Routine Analytical Chemistry Sub-Group" approved (CM9) Monitor No.9 test piece according to the provisions given in the international standard, ISO 16055.

CM9 is the current recommended monitor test piece for monitoring the stability of analytical processes when using the cigarette-smoking machine for routine analyses in accordance with ISO 3308.



#### **CM IP2 Monitor Test Pieces**

Description: CORESTA Monitor Test Pieces CM IP 2	Stock code
CRM Monitor Test Pieces CM IP2 in Carton of 5000 Pieces Plus Letter	99892
CRM Monitor Test Pieces CM IP2 in Carton of 10000 Pieces Plus Letter	99893

Cerulean offers monitor test pieces for ignition propensity testing (CM IP 2). These can be purchased in batches of 5000 or 10000 units.

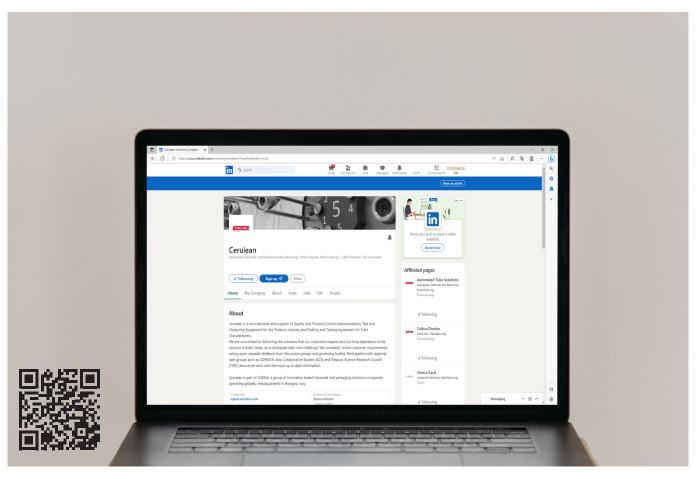




## Cerulean

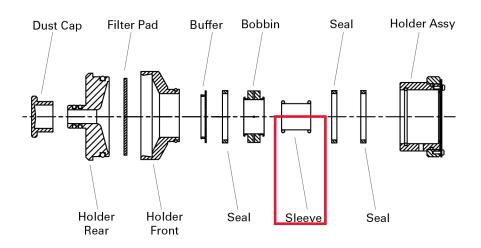
Appliances, Electrical, and Electronics Manufacturing. Milton Keynes. 2,317 followers





#### **Latex Sleeves**

Description: Sleeves	Stock Code
Latex sleeve blue 16.0 x 20.0mm	65386
Latex sleeve green 17.0 x 20.0 mm	65387
Latex sleeve red 18.0 x 20.0 mm	65388
Sleeve Latex Bk 15.0mm x 20mm	65385
Sleeve Latex Bk 4.5mm x 20mm	65373
Sleeve Latex Bk 9.0mm x 20mm	65379
Sleeve Latex BI 10.0mm x 20mm	65380
Sleeve Latex BI 16.0mm x 20mm	65386
Sleeve Latex BI 5.0mm x 20mm	65374
Sleeve Latex Gr 11.0mm x 20mm	65381
Sleeve Latex Gr 17.0mm x 20mm	65387
Sleeve Latex Gr 5.5mm x 20mm	65375
Sleeve Latex Nat 14.0mm x 20mm	65384
Sleeve Latex Nat 8.0mm x 20mm	65378
Sleeve Latex Rd 12.0mm x 20mm	65382
Sleeve Latex Rd 18.0mm x 20mm	65388
Sleeve Latex Rd 18.0mm x 20mm	65388
Sleeve Latex Rd 6.0mm x 20mm	65376
Sleeve Latex YI 13.0mm x 20mm	65383
Sleeve Latex YI 7.0mm x 20mm	65377
Boxed Sleeves Rd 5.5mmx 35mm 100 off Latex	50055
Boxed Sleeves Gn 6.0mmx 35mm 100 off Latex	50057



\*a minimum order quantity may apply to some consumable spares

This publication is not intended to form the basis of a contract and the company reserves the right to amend the design and specification of products without notice.

## The reliable way to smoke THPs

The enhanced Orbit 20 rotary machine from Cerulean



Through continued research and development, Cerulean has proven that the Orbit 20 is the most reliable way to accurately capture aerosol when smoking Tobacco Heating Products on a rotary machine.

Our enhanced 20 port semi-automatic rotary smoking machine has significantly reduced dead-volume with an innovative sealing ring design for optimised aerosol capture.

The Orbit 20 has been tested and validated with cigarettes, e-cigarettes and THPs.

Contact your regional Cerulean sales manager for more information, or visit our website to browse our extensive range of smoking machine solutions.

World-wide support; we are your global, local supplier.

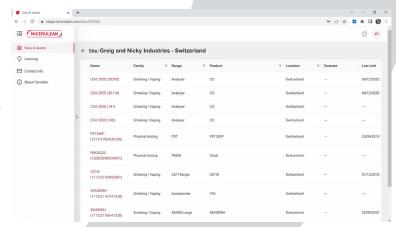


Introducing MiCerulean, the brand-new gateway tool for your Cerulean equipment.

The cloud-based system allows you to review information about your equipment including:

- Calibration certificates
- Certificate of conformity
- Maintenance reports
- Manufacturing test results

The gateway also has a library of information to support you, Cerulean Learning is a resource full of user manuals, technical guides and videos to allow you to maximise the functionality of your equipment.



A wealth of information is available along with links from your equipment pages direct through to the Cerulean spares website where more than 2000 items are available. From breakdown spares, maintenance service kits to upgrades, the spares site is your go-to place for Cerulean-approved spares.

Contact your regional sales or service manager to find out more about this amazing tool.



World-wide support: we are your global, local supplier.



## CERULEAN: PART OF THE COESIA GROUP



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