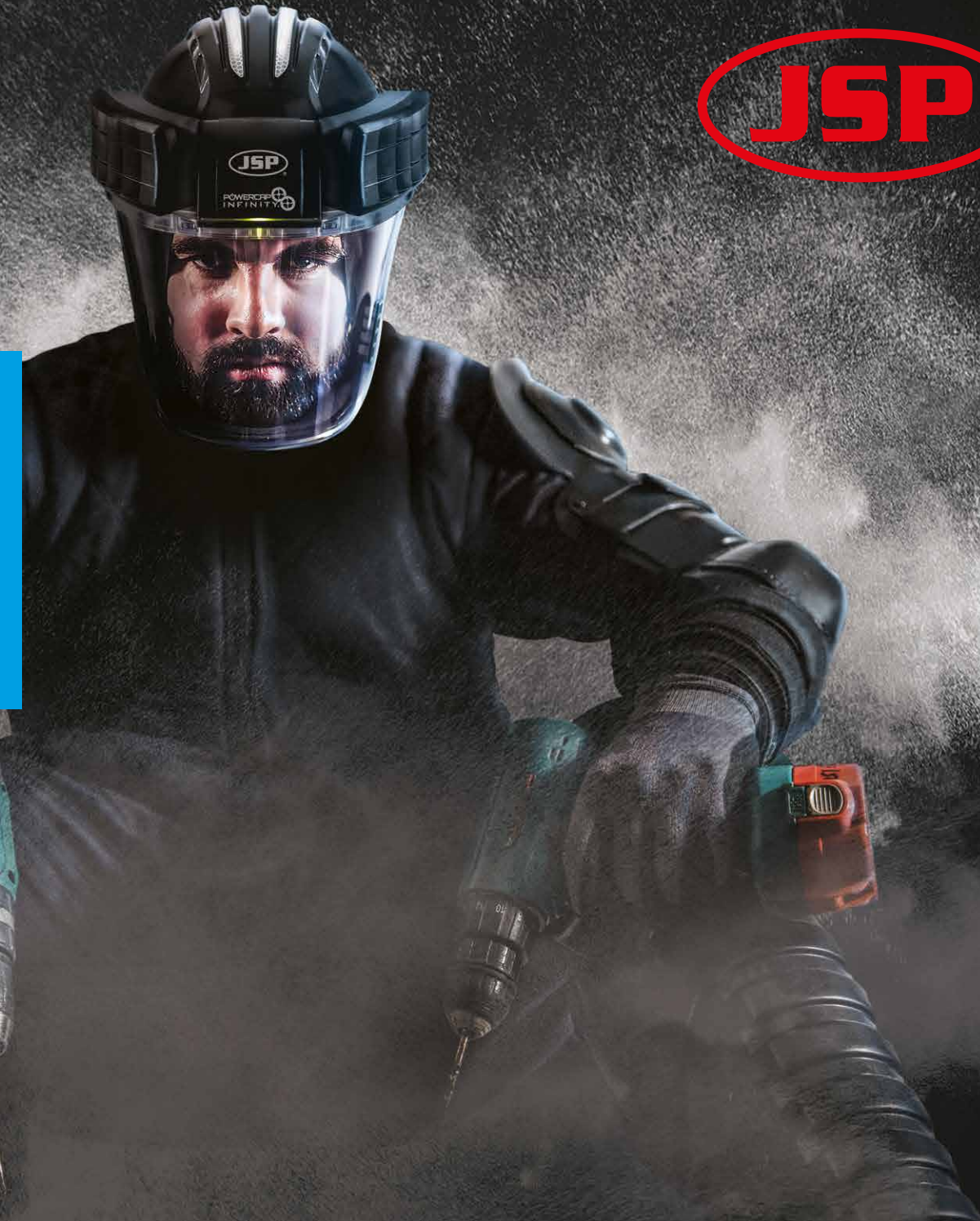




Product Innovation
Award 2018
Highly Commended



TH3 POWERED AIR PURIFYING RESPIRATOR



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VBKT-INFIN-UK-2018

4 IN 1 FULLY INTEGRATED PROTECTION

The NEW PowerCap® Infinity® PAPR – a fully integrated TH3 powered air respirator offering four of the highest levels of protection in one intuitive head mounted unit. Giving the wearer complete above the neck 4 in 1 protection. PowerCap® Infinity®, the perfect choice for many industries where dust poses a great danger to health. The unit provides the very latest in Powered Air Purifying Respiratory technology, combining decades of innovation from JSP in the fields of respiratory, head, eye and face protection.



VIDEO & INFORMATION
<http://bit.ly/PowerCapInfinity>



1 HEAD PROTECTION

The head protection element of the PowerCap® Infinity® is based on the EVO®5 Olympus® industrial safety helmet. The helmet combines a super strong ABS shell designed for superior all day protection with the comfort benefits of the Evolution® 3D-Adjustment™ harness system.



Conforming to: EN397



2 HIGH EFFICIENCY FILTERS

The high capacity HEPA filters coupled with the aerodynamically optimised pre-filter covers ensure that PowerCap® Infinity® delivers 160 litres per minute of clean air to the user with maximum battery efficiency. Filters can be effortlessly replaced using an intuitive quick-change bayonet system.



PowerCap® Infinity® provides users with clean air to a level of EN12941:1998 + A2: 2008 TH3P – the highest possible rating, with an NPF of 500 (UK APF 40).



3 PANORAMIC IMPACT VISOR

The optical class 1 visor conforms to EN166.B offering impact protection at speeds of up to 270 mph (tested using a 6mm steel ball bearing). The visor has a replaceable peel-off visor protector to prolong its life.



Conforming to: EN166.1.B

4 EAR DEFENDERS*

The PowerCap® Infinity® has been developed to seamlessly integrate with the optional Sonis® helmet mounted ear defenders. Designed by the JSP R&D team and working with a leading UK acoustic engineering research facility, the Sonis® helmet mounted range peaks at an unbeaten SNR 36dB. The helmet adaptor and the cushion surface area work together to provide optimum cushion pressure and comfort.



Conforming to: EN352-3



*Sonis® helmet mounted ear defenders are optional.

RESEARCH. DEVELOP. TEST.

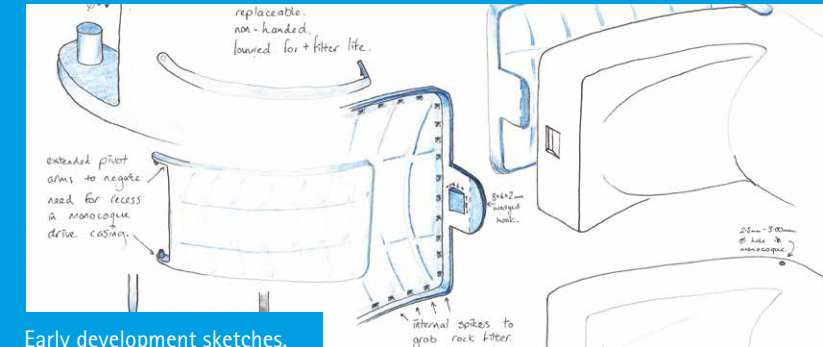
The PowerCap® Infinity® has been designed by the JSP R&D team, inspired by feedback received from workers who regularly have to wear Powered Air Purifying Respirators (PAPR). The goal was to fully understand the issues these users face and to develop a unit that performs above and beyond any other unit on the market.

RESEARCH

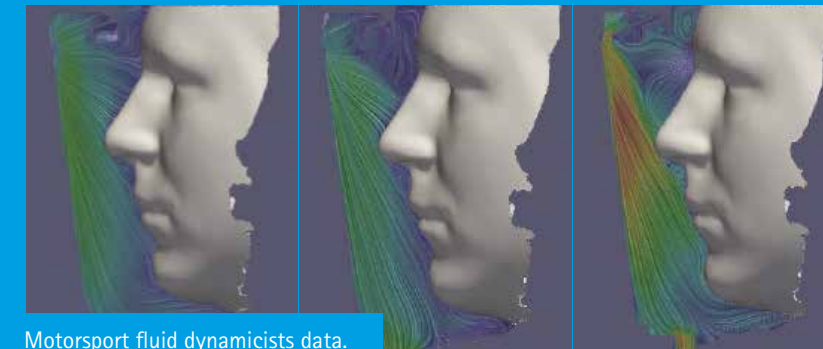
During the initial research period we found that wearers of some existing units reported that they were heavy, would underperform when under pressure and have unclear, complex warning systems. A common theme reported by users was heat build-up and restriction of movement when wearing a waist mounted filter unit. It became clear that a fully integrated solution was needed, combining head, eye, face, respiratory and hearing protection into one self-contained powered unit.



Product Innovation
Award 2018
Highly Commended



Early development sketches.



Motionsport fluid dynamicists data.



End user consultation led JSP to engineer out cumbersome/restrictive waist mounted units and hoses.

DEVELOP

JSP began developing a modular system with the knowledge that the constituent parts must not only seamlessly integrate, but also be simple to disassemble for ease of maintenance. Battery technologies were analysed and tested to find the most efficient output performance. Varying grades of filtration material were assessed to find the most highly efficient, low resistance filtration media.

The unit had to be smart; PowerCap® Infinity® measures air temperature, orientation, battery voltage, motor current, exhaust pressure, plenum pressure and remaining battery charge twice per second to deliver real time information on performance status. As part of extensive developmental testing, JSP worked in partnership with leading motorsport fluid dynamicists. Using advanced computational fluid dynamics, JSP engineers were able to fine tune the unit and maximise the airflow.

TEST

With the initial development complete, JSP had to be sure an advanced prototype would perform and embarked on a rigorous and time consuming testing process. With airflow control a priority the motor's drive control algorithms were optimised. Wearer trials were conducted with the feedback used to ensure the airstreams were channelled comfortably around the face. Hundreds of hours of human treadmill tests were conducted in a purpose built salt dust challenge chamber to optimise mass, balance and sealing elements. Finally extensive user trials were conducted, putting the PowerCap® Infinity® to the test in a variety of harsh conditions.

POWERFUL TWIN TURBO PERFORMANCE

Designed from the ground up to deliver unrivalled performance. PowerCap® Infinity® is fully loaded with performance enhancing technology, neatly packaged into a single head top unit eliminating the need for cumbersome/restrictive waist mounted units and hoses.

OPTIMAL TWIN TURBO AIRFLOW

For prolonged user comfort it is important to control the movement of air inside the respirator. JSP, in partnership with leading motorsport aero dynamicists used computational fluid dynamics to develop a highly efficient twin impeller system. The patented Twin Turbo Technology controls the airflow through the headtop to maximise user comfort and optimise energy efficiency. Real time diagnostics ensure that the twin impeller motor unit delivers the optimum level of airflow depending on the wearer's demands and regulates the intake and internal pressure delivering a minimum of 160 litres a minute of filtered clean air.



Patented
twin turbo
technology



SMART PPE

Real time diagnostics monitor the system and the wearer twice per second, giving the user accurate, dynamic feedback. Periods of high respiratory demand are monitored and catered for by constantly maintaining a positive pressure inside the respirator. Feedback is given on battery and filter condition via the heads up display and audible notifications.

TH3 Performance

PowerCap® Infinity® offers respiratory protection to TH3, with a Nominal Protection Factor of 500 (UK APF 40). TH3 is the highest possible rating in the EN12941:1998 + A2:2008 standard.



PERFECT FIT TO COMBAT DUST

Dust in the workplace is a significant issue. The latest HSE figures (2017) show that 18,000 new cases of work-related respiratory disease were diagnosed. A significant proportion of these were the result of exposure to silica. While the problem is widely acknowledged and use of respiratory equipment is high, it is often not suitable for the person or the environment it is being used in.

NO NEED TO FACE FIT TEST

Suitability of tight fitting filtering RPE is assessed by face fit testing, in many cases this is not done or there are errors in the test carried out or the subsequent use of equipment. One of the biggest factors is facial hair. The HSE issued a number of reports showing the results of fit testing for individuals with varying degrees of facial hair. JSP have carried out a number of tests and found, like the HSE, that a tight fitting mask works very well when the wearer is clean shaven but performance levels drop quickly when the user has facial hair. PowerCap® Infinity® removes the need for fit testing, ensuring that a high volume of clean air is delivered to the breathing zone giving a high level of protection.

No need to
FACE FIT test

SUITABLE APPLICATIONS



Aerosols
Oil Based Fluids



Agriculture



Allergens



Building
Demolitions



Carpentry



Clinical
Research



Concrete



Construction



Forestry



Fibre Glass
Mechanical



Paint Stripping
Mechanical



Pharmaceuticals



Metallic
Dusts



Mining



Weed
Killing

MINIMAL MAINTENANCE

PowerCap® Infinity® has been developed as a modular system, making it easy to disassemble and reassemble for ease of cleaning and maintenance. To ensure the optimal performance of PowerCap® Infinity® it is important that maintenance is carried out on a regular basis.

The main components can be cleaned down with a damp cloth or brush. Care needs to be taken with the visor, it should not be wiped with a damp cloth as this could lead to scratching, but should be rinsed under running water. The face seal can be easily removed for machine washing with a mild detergent at 30°C.



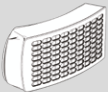
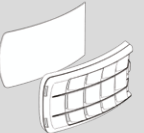




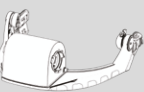
 **FITTING &
CARE VIDEOS**
<http://bit.ly/Infinity-videos>



Pre-filters will need changing more frequently followed by the high efficiency filter. The smart technology embedded in PowerCap® Infinity® will identify when the filters are blocked and need changing, however as a general guide pre-filters should be changed daily and filters weekly. The visor and skirt are parts that will also need periodic replacement. All parts are available as indicated in the replacement parts table.



Easy twist off filters

Replacement Parts	Product Code	Image
PowerCap® Infinity® P3 filters (pair)	CAU660-000-400	
PowerCap® Infinity® pre-filter (5 pairs) and pre-filter covers (1 pair)	CEU100-006-500	
PowerCap® Infinity® visor	CEU110-001-300	
PowerCap® Infinity® peel off visor protectors (10 pack)	CAU180-000-000	
Black* EV0®5 Helmet for PowerCap® Infinity® <small>*Other colours available on request</small>	AKG179-P01-100	
Helmet harness strap	CEU190-000-000	
PowerCap® Infinity® Twin-Turbo drive unit and visor carrier assembly	CEU120-001-300	

Replacement Parts	Product Code	Image
PowerCap® Infinity® PowerBox2™ 8 hour run time battery pack	CEU170-000-000	
PowerCap® Infinity® visor seal - machine washable at 30°C	CEU180-000-000	
PowerCap® Infinity® charge dock and power supply	CEU130-001-100	
PowerCap® Infinity® airflow indicator test unit	CEU140-001-100	
PowerCap® Infinity® carry-case	CEU170-001-100	
Sonis® Compact Certified compatible ear defender	AEB030-0CY-000	
PowerCap® Infinity® complete unit	CEA646-001-100	

TECHNICAL SPECIFICATION

PowerCap® Infinity® has been developed with many international directives and standards in mind, not just performance ones but also environmental ones:

The Waste Electrical and Electronic Equipment Directive (WEEE Directive) that sets collection, recycling and recovery targets for all types of electrical goods to ensure that the unit can be broken down at its end of life and recycled as easily as possible.

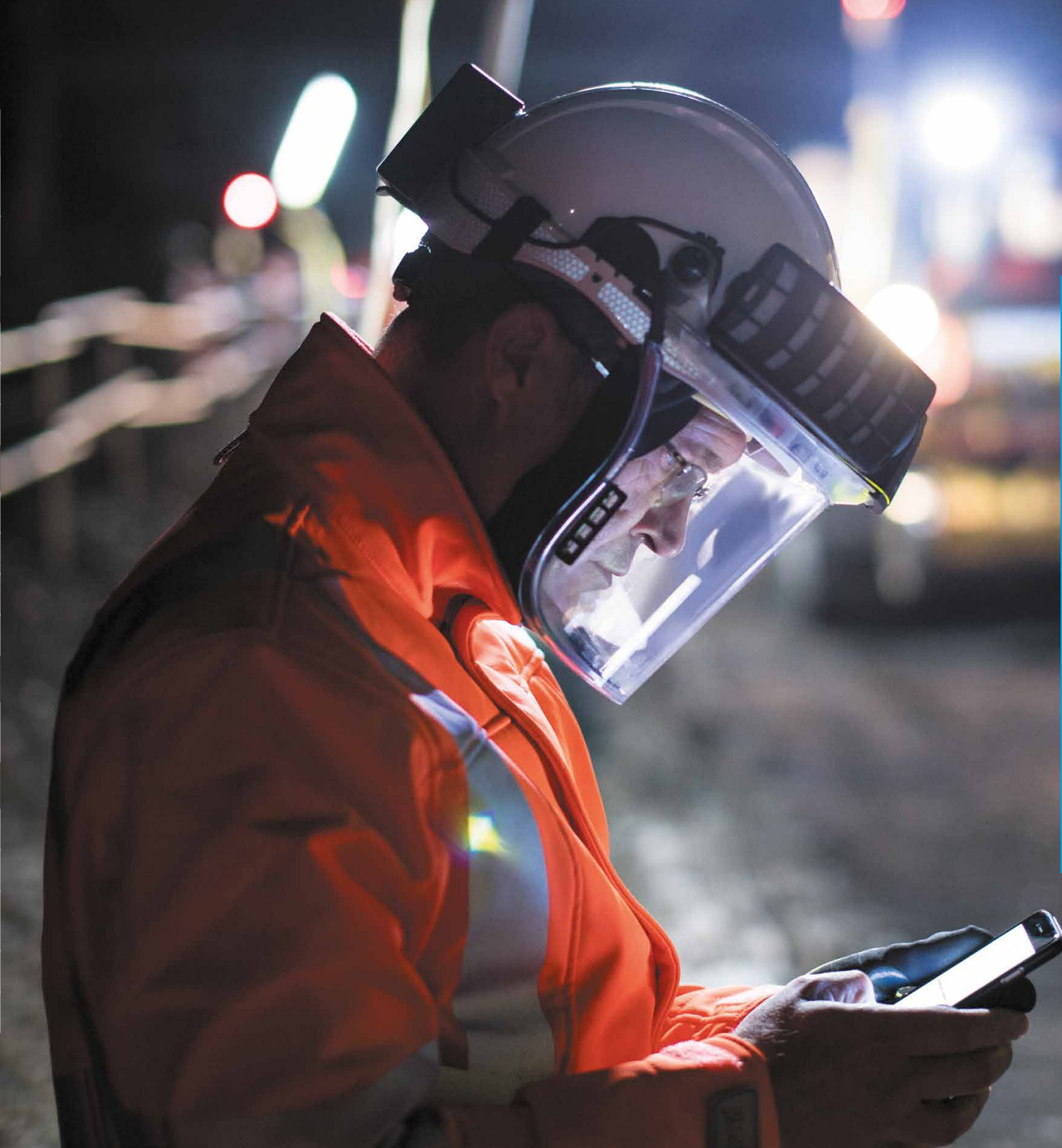
REACH COMPLIANT The requirements of REACH, the European Union regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals to ensure that all parts of the PowerCap® Infinity®, particularly those parts in long term contact with the wearer are innocuous and not likely to cause any adverse reactions.

The Restriction of Hazardous Substances Directive restricts the use of hazardous materials in the manufacture of electronic and electrical equipment, these are Lead (Pb), Cadmium (Cd) and Mercury (Hg).

Batteries are often referred to as "UL compliant", a term that covers a number of standards that have been developed to ensure batteries, such as the PowerCap® Infinity® PowerBox2™ are designed to have clear labelling and protection against short circuiting, among other aspects, to promote safer carriage of the batteries.



Respiratory protection	
EN12941	✔ European standard for powered filtering respiratory devices incorporating a helmet or hood
TH3P R SL	Indicates a 99.8% efficiency for protection against particle – solids & liquids with an APF 40 – reusable
Head protection	
EN397	✔ European standard number for industrial safety helmets
LD	The helmet will provide some protection from lateral compressive loads
MM	The helmet will provide some protection against molten metal splash
Eye & face protection	
EN166	✔ European standard for protective eyewear
1	Optical quality (high)
B	Protection against medium energy impact against high speed particles
Scratch resistant	✔
Optional hearing protection standard	
EN352-3	✔ European standard for helmet mounted hearing protection – For details about the Sonis® range of hearing protection see the Sonis® pages in this guide
PowerCap® Infinity® general performance & statistics	
Weight	1200g
Head size range	53 – 64cm The size range of the helmet, head circumference
Battery type	Rechargeable Lithium-ion 3.6V, 5.2Ah, 18.72 Wh. Expected life of 500 cycles when charged, stored and used in accordance with the user instructions
Battery run time	8 Hours
Battery charge time	8 Hours to fully charge



RFID TECHNOLOGY

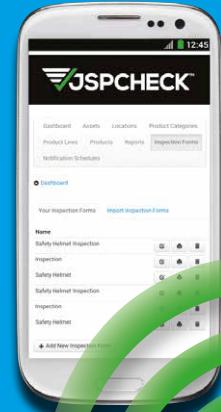
Each PowerCap® Infinity® unit is fitted with a radio frequency identification device (RFID) tag. The RFID tag can be scanned using a mobile phone or scanner to add PowerCap® Infinity® to an asset management system such as JSPCheck™. Find out more at www.jspcheck.com

ASSET MANAGEMENT

Used for easy, instant inventory control and in-field inspections. Manage your documentation and reports by tracking PPE, tools and equipment online.

INSPECTION & COMPLIANCE

Precise data gathering for improved compliance, automate, retain and retrieve product and training documentation instantly.



WHY USE HEARING PROTECTION?

The World Health Organisation has identified noise-induced hearing loss as being the most common permanent and preventable injury in the world. With tinnitus now the third most serious non-fatal medical condition it is little wonder that hearing protection has been raised to category III in the new PPE Regulation.

WHAT IS CATEGORY III?

PPE Regulation (EU) 2016/425 is mandatory, and is categorised as follows:

- Category I – simple PPE
- Category II – intermediate PPE
- Category III – complex PPE

Category III as defined in the PPE Regulation 'includes exclusively the risks that may cause very serious consequences such as death or irreversible damage to health'. With harmful noise now rated category III it is essential that the correct hearing protection is selected.

After four years of research, development and significant investment JSP are proud to launch the new Sonis® high performance ear defender range.



View fitting and maintenance videos:
<http://bit.ly/SonisHow2>



		Powercap® Infinity® Helmet Mounted
Weight	EN Standard	EN352-3
	Sonis®1	240g +/-5g
	Sonis®C	260g +/-5g
	Sonis®3	380g +/-5g
Materials	Cups/Plate	ABS
	Pivot Arm	Acetal
	Sealing ring	PET-G plate TPU skin Foamed polymer
	Inner foam	Polyurethane foam

SONIS 1



SNR 26dB

**GREEN – LOW ATTENUATION
SMALL CUP 80-106 dB**

- Moderate industrial noise
- Workshops
- Printing works
- Landscaping
- Leisure activities

SONIS C



SNR 31dB

**ORANGE – MEDIUM ATTENUATION
SMALL / COMPACT CUP 106-111 dB**

- Substantial industrial noise
- Construction & agricultural machinery
- Roadworks
- Forestry
- Engineering

SONIS 3



SNR 36dB

**RED – HIGH ATTENUATION
LARGE CUP 111-116 dB**

- Extreme industrial noise
- Aircraft
- Quarrying
- Paper mills
- Heavy engineering