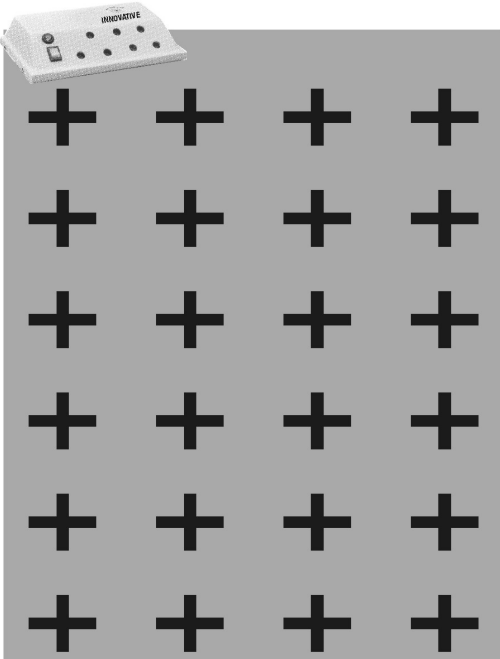


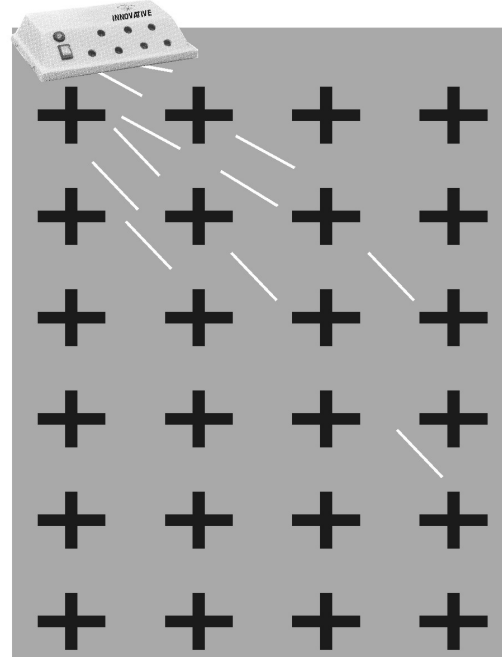
**AIR
IS
OUR
FUTURE**

DISCOVERING & REDISCOVERING EFFECTIVE SOLUTIONS IN INNUMERABLE CRITICAL APPLICATIONS

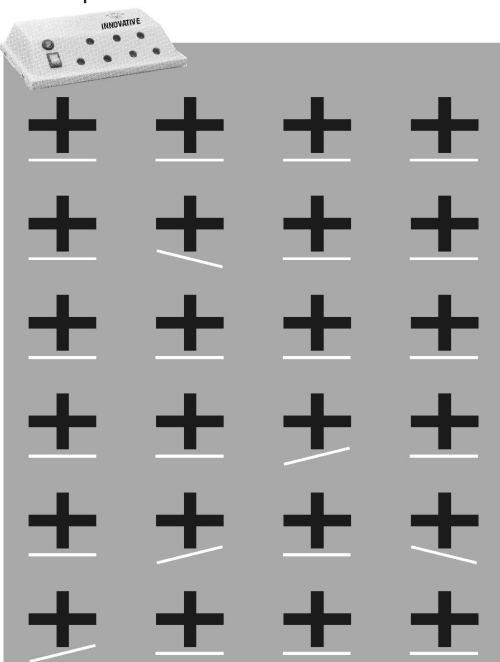
1 Inside a innovative system, input line voltage is qualitatively stepped up in stages. The high voltage produced is applied to a number of specially treated emitters.



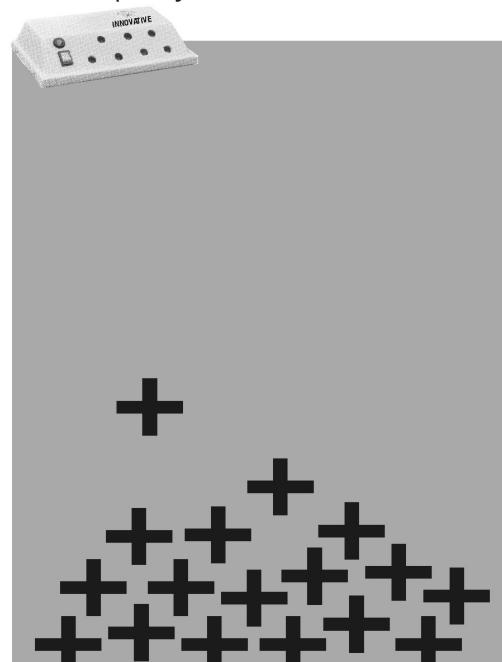
2 The electrons emitted into the ambient air, attach themselves to gas molecules, forming negative ions.



3 The steady flow of negative ions from the system, actively neutralizes positively charged contaminants. Such as particles, bacteria and other free-floating pollutants in the area.



4 The neutralized pollutants tend to cluster, gather weight and settle down at ground level. What you ultimately get is a '**PURE ZONE**' around the active area of the unique system.



These days, the concept of clean-air environments is increasingly under threat from two kinds of pollutants. Contaminants that are basically infiltrators. And internally generated pollutants. The major offenders are dust, aerosols, fumes and microbes, oil mist, chemical and acid fumes or plain process dust.

So do we really need to worry about microscopic, free-floating contaminants that literally come out of thin air? Let's take a closer look at a few focus areas, to really view the magnitude of the problem.

PUREZONE PLANNING

At innovative solutions we have introduced a breakthrough concept that places a sharp focus on two critical work inputs that need protection. The man on the job. And the machine he works with.

We're talking about health on the one hand, and the working efficiency of manufacturing systems on the other. Calling for an integrated solution that works toward the 'ultimate' that's humanly possible today- a '**PURE ZONE**' solution.

**Technology
that helps
you breathe
easy**



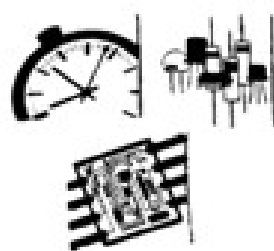
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PUREZONES in Clean Rooms



Clean Room standards have to keep pace with developments in manufacturing technologies. Especially for fine-tuned environment-sensitive process lines

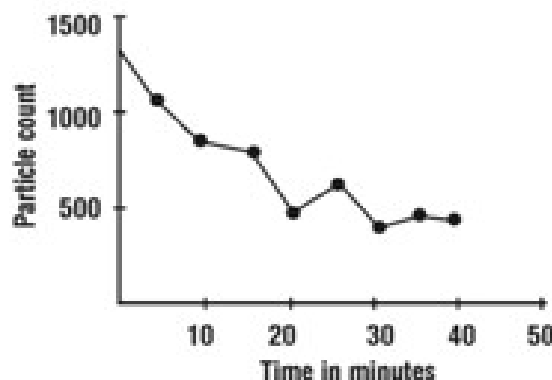
A speck of dust, a thousand times smaller than the full stop at the end of this line, can short-circuit a microchip. A teeny-weeny smoke particle that's practically invisible, can send a CNC system haywire.

Maintenance guidelines for Clean Rooms specify a threshold range depending upon the nature of the operation. And as long as the system is within the range, it's considered safe. Which in effect is rather hazy in qualitative terms, because the ideal condition is always out of reach. People and equipment traffic for instance can perpetually disturb achievable standards.

So instead of merely operating within a range, Clean Room objectives could aim at optimizing pure zone levels-in critical process areas such as electronic sub-assemblies, IC manufacture, watch module assembly, lens polishing or bearing lapping.

If you are interested in a 'PURE ZONE' solution that helps you optimise the efficiency of Clean Room Atmospheres, write in to us at innovative solutions. We will mail back a comprehensive data sheet that's relevant to your applications.

An example of how we can reduce the 'Particle Count' in Clean Rooms



Air Ionisation Module IS - 45

| CLIENT | PUREZONE APPLICATION |
|--------------------------------------|---------------------------|
| ● Babha Atomic Research Centre | △ Class 100 Clean Room |
| ● Indian Telephone Industries | △ Class 1000 Clean Room |
| ● Ministry of Defence | △ Class 1000 Clean Room |
| ● Indian Space Research Organisation | △ Class 10,000 Clean Room |



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PUREZONES

For Fine Filter Installations



In concept terms, a filter is an efficient dust trap-but not always a 'fit-and-forget' solution. Filters get clogged sooner or later.

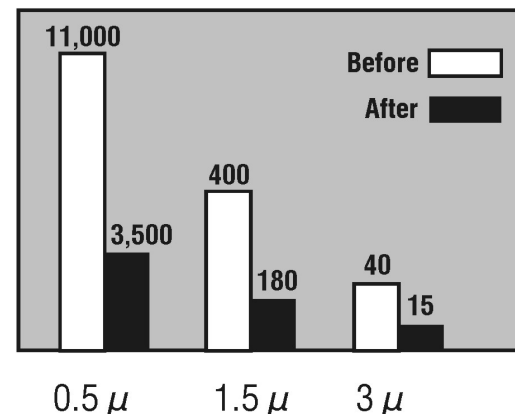
When a filter gets clogged, there is a pressure drop across the membrane. The resulting back pressure on the blower, progressively increases the operating load - which in turn increases power consumption. So in addition to a marked drop in system efficiency, there definitely is a significant rise in operating costs.

Filters can be expensive to start with. Going up the scale, MICROVEE, HEPA and ULPA filters increase run-time costs. Especially when you need back-ups and replacements frequently. But since a filter system is integral in the design plan of highly sensitive work areas, let us examine how a 'PURE ZONE' solution fits in.

Our industrial ionization system works as a dust magnet and a very effective pre-filter cutting down particle incidence on the filter membrane. This first-level trapping of dust, increases filter life and reduces maintenance and replacement costs. Within the work area, you could have a second-level ionization system that tackles internally generated contaminants.

When a problem has more than one dimension, you need a versatile solution

An example of how we can reduce particle incidence' at fine filter installations



| CLIENT | PUREZONE APPLICATION |
|--------------------------------------|--|
| ● Indian Space Research Organisation | △ Class 10000 - Solar Panel Laboratory |
| ● Babha Atomic Research Centre | △ Class 100 - Electronic Assembly |
| ● INDAL, Mysore | △ Class 100000 -PCB manufacture |
| ● Ministry of Defence | △ Class 1000 - Optical Assembly |

Air Ionisation Module IS - 90

If you are interested in a 'PURE ZONE' solution that helps you increase system efficiency. Minimize run time and maintenance costs, write in to us at Innovative Solutions. We will mail back a comprehensive data sheet that's relevant to your applications.



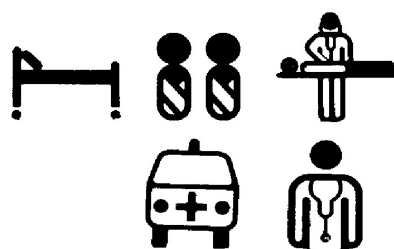
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PUREZONES In Hospitals



The concern that goes into maintaining aseptic environments can be the life-line at any hospital

On paper, it's relatively easy to plan zero-contamination levels. But within the four walls of aseptic rooms it's not so simple. Especially when you have to deal with microbes generated within the room. Or take into account the constant stream of staff and equipment traffic.

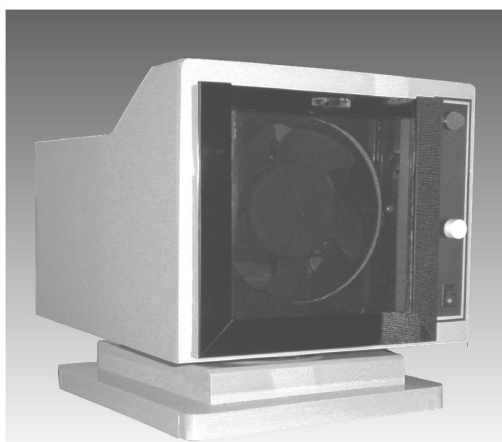
The problem becomes really serious at locations such as the ICCU, Transplant ICUs, Burn Rooms, Neo-Natal Wards and Labour Rooms where people are extra sensitive to infection. Or Post Operative Rooms where they run the risk of cross infection.

Most operation theatres are fumigated thoroughly once a week, usually over the weekend. Considering the fact there is a gradual increase in the bacteria count, operations carried out later in the week run a higher risk of infection.

At other aseptic rooms the fumigation method is impractical because of in-patient occupancy.

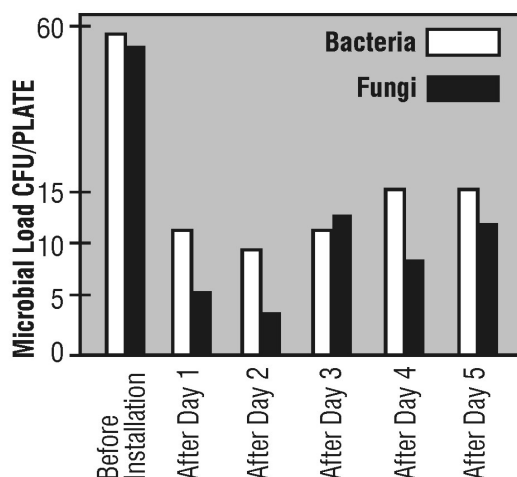
Achieving PUREZONE conditions at Aseptic Areas is just half the story. Sophisticated diagnostic equipment such as Cath Labs. Whole Body Scans, CT Scans and MRI systems are also sensitive to microscopic dust. Leave alone malfunction, even a small deviation in test or scan accuracies can be critical.

At Innovative our concern for purer air is so widespread, that we even have a special system for ambulance vans.



***Ionisation Integrated Blower Module
IS - 100***

An example of how we can reduce the 'Microbial Load' in hospitals

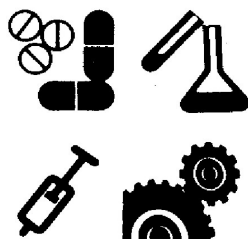


If you are interested in a PUREZONE solution that helps you ensure dust-free, aseptic environments, write in to us at innovative solutions. We will mail back a comprehensive data sheet that's relevant to your applications.

| CLIENT | PUREZONE APPLICATION |
|--|---|
| ● Apollo Hospitals | △ Operation Theatres, Burns Rooms, Diagnostic Labs |
| ● St. John's Medical College Hospital | △ Burns Unit |
| ● Manipal Hospital | △ Operation Theatres |
| ● NIMHANS | △ Operation Theatres, Neuro - physiology |
| ● Sri Jayadeva Institute of Cardiology | △ Operation Theatres, Cath Lab, Recovery Rooms |
| ● G.B. Pant Hospital | △ Operation Theatres, CT CT ICU Recovery Rooms |
| ● Other Hospitals | △ Neo Natal Wards, Ultra-Sound Scan Rooms, Labour Rooms |

PUREZONES

In Manufacturing Areas

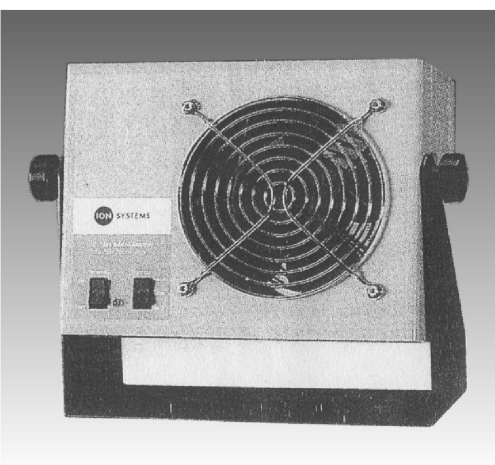


When we talk about specialised industrial applications, there are four basic focus areas that can be addressed.

- Dust sensitive areas such as control rooms, instrumentation panels, EDP rooms and metrology labs. Our concern here is to effectively control dust infiltration.
- Dust generation areas in pharmaceutical industries with production lines for tablets. And manufacturing lines that handle abrasives using silicon carbide and aluminium oxide. Our concern here is to cluster the dust thrown up by these processes, prevent infiltrations into other critical manufacturing areas and reduce the risk of health hazards.
- Fume generation areas such as electronic assemblies with solder lines, diesel generator rooms, and process lines that handle organic solvents. Our concern here is to precipitate the fumes that cloud around work areas.
- Odour generating areas such as effluent treatment plants, rubber based manufacturing lines and certain chemical-based processes. Our concern here is to neutralize odour saturated aerosols and clear the air.

Nuclear plants generate a fair amount of radioactive dust within the workzone-underlining the need for a powerful system to control free-floating, radio-active aerosols. Our concern here is to make the Innovative Solutions system input an integral component in the operations safety plan.

The PUREZONE component here actually upgrades process technology. And reduces the intensity of exposure levels in terms of occupational hazards.



Integrated Ionisation System

If you are interested in a PUREZONE solution that optimizes the safety factor in manufacturing environments, write in to us at innovative solutions. We will mail back a comprehensive data sheet that's relevant to your applications.

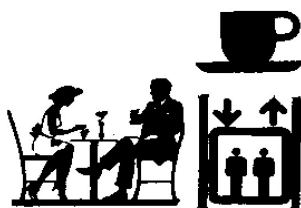
An example of how we can reduce the 'pollution load' in manufacturing areas

| NATURE OF POLLUTANT | % OF REDUCTION |
|---------------------|----------------|
| General Dust | 80% |
| Respirable Dust | 84% |
| Fumes | 80% |
| Ammonia Vapour | 50% |
| Cutting Oil Mist | 80% |

| CLIENT | PUREZONE APPLICATION |
|--|---------------------------------------|
| ● Nuclear Fuel Complex | △ Radio-active dust |
| ● Indian Space Research Organisation | △ Solder fumes |
| ● TVS Suzuki | △ Cutting Oil Mist |
| ● BHEL, Trichy | △ TIG Welding fumes |
| ● Fenner India | △ Tri-chloro-ethylene fumes |
| ● BHEL, Hyderabad, Jhansi, Ranipet, Bangalore. | △ Ammonia Fumes in Reprographic areas |
| ● BHEL, Bangalore | △ Electronic Assembly |
| ● BHEL, Hyderabad | △ Brazing Fumes |
| ● Brakes India | △ Tri-chloro-ethylene fumes |

A short term solution can create long term problems-often far more complex than the problems you started with.

PUREZONES in Hotels and Clubs



If there's one thing that's top priority in hotels, it's the velvet edge in guest comfort. We're talking about a specially designated task force to ensure an extra measure of concern that goes into bright and cheerful rooms, crisp lines, cloak rooms that are spic, span and sanitized.

Which brings us to one important focus area that often goes under the wraps : the air that a guest breathes in your hotel.

5 star comfort now has a new dimension: pure air systems.

While a hotel's air-conditioning system efficiently conditions the environment, it does not purify the air. If only recirculates the microbes, The cigarette smoke and the contaminants that are generated inside the hotel day after day.

The fan coil unit in most guest room is another serious focus point. The deposition of dust on the cooling coils over a period of time decreases the heat transfer efficiency of the coils resulting in higher power consumption.

Taking this concern further, we'd like to draw your attention to the Butchery, Gardemanager and Preset areas where the microbe generation alters taste, affects freshness and accelerates spoilage. There's a lot Innovative solutions can do in these areas, in terms of an integrated '**PURE ZONE**' solutions.

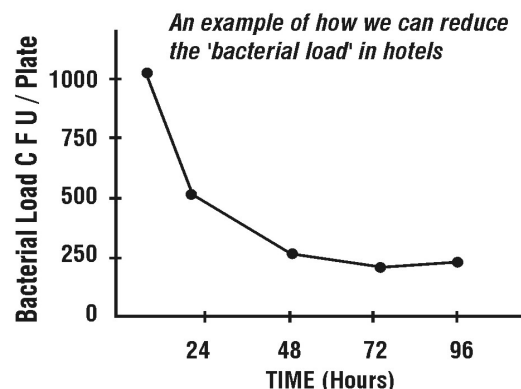


Ion Blower : IS-200

PUREZONES in Bars, Restaurants and Clubs

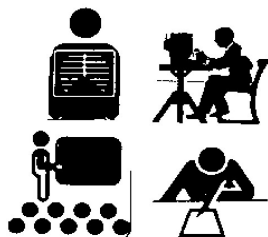
Open traffic areas such as Restaurants, Bars and Pubs can get extremely stuffy with cigarette and cigar smoke. A well-designed ventilation plan doesn't really comfort the non-smoker, because exhaust systems are overworked most of the time.

*If you are interested in a '**PURE ZONE**' solution that adds a whole new dimension to guest comfort, write in to us at Innovative solutions. We will mail back a comprehensive data sheet that's relevant to your applications.*



| CLIENT | PUREZONE APPLICATION |
|--------------------------------|--|
| ● Taj Coromandel, Madras | △ Bar, Butchery, Lift Machine Room, Executive Cabins |
| ● Taj Residency Bangalore | △ Restaurant |
| ● Gateway Residency, Bangalore | △ Telephone Exchange |
| ● Taj Mahal, Delhi | △ Treated Fresh Air Units Guest Rooms |
| ● Taj Flight Services, Delhi | △ Butchery, Cold Preset Area |
| ● Maurya Sheraton, Delhi | △ Butchery, Conference Room |
| ● Chola Sheraton, Madras | △ Bar, Butchery, Guest Rooms Gardemanager |
| ● Krishna Oberoi, Hyderabad | △ Computer Area |
| ● Sindoori Hotel, Madras | △ Bar, Restaurant |

PUREZONES for Work Environments



The concern over health hazards on the job is now getting the kind of attention it deserves. Not just in terms of awareness, but in constructive effort that's making work areas safer. Quite simply because the health of a company depends on the health of its people. And when we talk about health hazards on the job, two clear-cut focus areas come to mind. Operator safety, And executive health.

In addition to fatigue, work-hour tension and 9 to 5 headaches, health hazards on the job can also be serious in terms of irreversible, long term damage, Calling for a carefully planned, integrated solutions. The key word is 'integrated', going by some of the problems we have encountered at industrial locations.

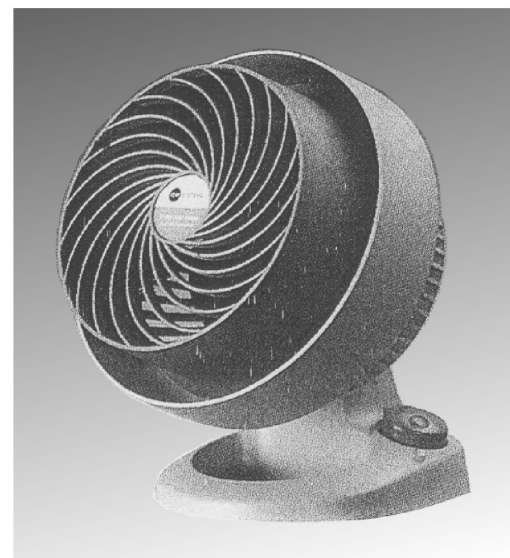
A heavy duty exhaust system installed to drawn out foul air in a basement process room does its job by throwing out pollutants. A few floors directly above the process room, you can have fresh-air systems that drawn the same pollutants into executive cabins.

You can't get rid of a problem by getting it out of the way. Which brings us to the versatility of the PUREZONE concept making it relevant to virtually any work area. Even AC environments, that have for long been given a purifying tag they don't deserve.

Ionizers in AC environments can do a world of good, because they actually refresh ambient air in qualitative terms. The negative ions add a 'perk up' in the room that can actually be felt.

If you are interested in a 'PURE ZONE' solution that eliminates health hazards on the job, write in to us at Innovative solutions. We will mail back a comprehensive data sheet that's relevant to your applications.

The health of company depends to a very large extent on the health of its people.



Integrates Ionization Module

| CLIENT | PUREZONE APPLICATION |
|--|--------------------------------------|
| ● Centre for Development of Telematics | △ EDP Rooms |
| ● Indian Institute of Astrophysics | △ EDP Rooms |
| ● Raman Research Institute | △ EDP Rooms |
| ● Integral Coach Factory | △ EDP Rooms |
| ● Bharat Heavy Electricals Limited | △ Conference Rooms |
| ● Canara Bank | △ Conference Rooms, Executive Cabins |
| ● Coffee Board | △ Conference Rooms, |
| ● ICRISAT | △ Auditorium |



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Technology that helps you breathe easy



At Innovative solutions quality control is not a watchdog concept that monitors standards, but a value that is built in at each stage. Starting with treating the bareboard, to mounting the last resistor.

The heart of a 'PURE ZONE' system is a solid state circuit, with no moving parts or heat producing components.

- The system is long-lasting and does not need regular or recurring maintenance.
- We apply industry-specified burn-in procedures for the electronic module to ensure long-life reliability.
- The ion emitters go through a surface treatment process that includes gold plating, for protection against corrosion.
- The tough fibreglass casing gives the module a protective shell, useful in industrial environments. The casing is also a good high-voltage insulator.
- The powerpoint interface has a built-in tolerance for voltage fluctuations which means you don't need a stabilizer unit.

At innovative solutions, the 'PURE ZONE' project has concentrated on widening application possibilities. And adding value to each application area in terms of direct benefits.

In effect, there's more to Innovative solution than a 'PURE ZONE' giving the technology a versatile, multi-benefit platform.

- FINE TUNED WORK ENVIRONMENTS
- OPTIMIZATION OF IN-PROCESS RELIABILITY
- BETTER USE OF CRITICAL RESOURCES
- ENERGY CONSERVATION
- SAFETY 'ON THE JOB'

If you want to see how PUREZONE Can work for you, call us before the dust settles down.

As you will see, we don't market solutions 'off-the shelf'. Each interested prospect gets the benefit of a need based plan that comes free. Here's what we do when you call us



Automobile Ionization Module CR-6

- Assessment of ambient atmospheres at the workplace
- Isolation of priority areas
- Choosing PUREZONE configurations
- PUREZONE planning for long term benefits.