a new approach to air quality in hospitals
First of all…. air hygiene and quality

Maintaining the right thermal-hygrometric conditions is certainly a key factor in hospital settings. During the design phase, indeed, great attention must be paid not only to the air-handling process, but also to the air-distribution system.

But how must this air be?

Not only must it guarantee the correct environmental comfort but above all it must be clean and clear of any bacteria, indeed of quality from a hygiene point of view.
P3ductal care: antibacterial air ducts to be used in environments which require high levels of hygiene.

The P3ductal care solution has been studied on purpose for those air ducts which have to be used in environments with high hygienic requirements. The solution is based on a special pre-insulated aluminium panel supplied with an antibacterial treatment. The panels are treated with a special active principle capable of insuring a correct bactericidal function that is capable of inhibiting the microbial proliferation.

**P3ductal care is suitable for:**

- hospitals
- operating rooms
- pharmaceutical industries
- clean rooms
- laboratories
- food industries

P3 has been producing the P3ductal antibacterial panel since the year 2000.
P3ductal care: extra hygiene and air quality with the antibacterial treatment

State of approval for P3ductal antibacterial treatment

» european standard

BPD Biocidal Products Directive the active principle used for the antibacterial treatment has been notified according to the biocide directive

» european standard

EFSA European Food Safety Authority approved food contact

» american standard

EPA Environmental Protection Agency approved non food contact

FIFRA Federal Insecticide, Fungicide and Rodenticide Act approved food contact
P3ductal care: extra hygiene and air quality with the antibacterial treatment

P3ductal antibacterial treatment efficacy

The active principle efficacy of the antibacterial principle is guaranteed for the following bacterial strains:

- Escherichia coli
- Klebsiella pneumoniae
- Micrococcus luteus
- Streptococcus faecalis
- Trichophyton mentagrophytes
- Staphylococcus aureus
- Legionella Pneumophyla
- Proteus vulgaris
- Salmonella
P3ductal care: extra hygiene and air quality with the antibacterial treatment

Laboratory standards

- **JIS 2801-2001 o ISO 22196 - “Plastics – Measurement of antibacterial action on plastic surfaces”**
  
  This is a Japanese standard which has taken on international importance.

- **ASTM E 2180 – 01 “Standard test method for determining the activity of incorporated antimicrobial agent(s) in polymeric or hydrophobic materials”**
  
  American standard

In regards to this matter there are no precise reference standards for air ducts.
P3ductal care: extra hygiene and air quality with the antibacterial treatment

Laboratory test: P3ductal antibacterial treatment

The antibacterial efficacy of the P3ductal panel has been evaluated in conformity with the ISO 22196 due to the fact that it is an international standard and because it has been verified according to a study that guarantees its repeatability and results.

The tests have been performed in a Health Ministry accredited laboratory.
P3ductal care: extra hygiene and air quality with the antibacterial treatment

Laboratory test: P3ductal antibacterial treatment

The ISO 22196 evaluates the biocide efficacy of treated plastic materials which have been put into contact for 24 hours with inoculations of contaminated agents.

The laboratory tests have demonstrated that the antibacterial treatment has an efficacy of at least 99%.
Installation necessities

The ducting system must guarantee not only the quality and hygiene of the distributed air. It must also insure:

1 » energy saving
2 » airtight seal
3 » eco-sustainability
4 » fire safety
5 » earthquake safety
6 » lightness
7 » low noise level
8 » ease of construction and installation

The P3ductal care solution, like all the solutions offered by the P3ductal range, solve all of these necessities guaranteeing the highest of performances and passing all the most rigid tests imposed by national and international standards.
P3ductal: the best solution for hospitals.... And not only

1 ▶ energy saving

▶ high thermal insulation ($\lambda_i=0.022 \text{ W/(m°C)}$)
▶ reduced friction losses
▶ excellent performance throughout the entire system
▶ P3ductal ducts guarantee, according to the LCC (Life Cycle Costing), an important reduction of the day to day energy costs

2 ▶ air seal

▶ exclusive invisible flanging system
▶ elimination of the longitudinal leaks and the reduction of the ones in the transversal junctions
▶ best air seal class established by the standard UNI EN 13403
P3ductal: the best solution for hospitals.... And not only

3 ▶️ eco sustainability

▶️ use of exclusive water-based Hydrotec technology foaming of the insulating agent
▶️ no CFC’s, HCFC’s, HFC’s or HC’s for their production
▶️ total compliance with the standards regarding CFC’s and HCFC’s in force since January 1st 2003
▶️ ODP = 0 and GWP = 0 which means maximum respect for the environment
▶️ LCA (Life Cycle Assessment) analysis
▶️ establishment of PCR (Product Category Rules)
▶️ EPD certification (Environmental Product Declaration)
P3ductal: the best solution for hospitals.... And not only

4 >> fire safety

class B according to the European EN 13501 Standard

optimal behaviour in case of fire (class 0-1 according to Italian Ministerial Decree 26/6/84, French class M1, English class 0 according to BS 476 parts 6 and 7)

excellent results obtained in the Room Corner Test - ISO 9705 – the only assessment tool capable of simulating a generalised fire on a large scale

safety of fume emissions - class F1 according to AFNOR NF F 16-101 standards

low smoke toxicity (FED and FEC <0,3 according to prEN 50399-2-1/1)
P3ductal: the best solution for hospitals.... And not only

5 >> maximum safety in the event of earthquakes
   >> lightness and rigidity
   >> high flexional rigidity
   >> deformation and movement reduction
   >> high dampening values

6 >> lightness
   >> P3ductal ducts weigh 1.5 kg per m², as against the 10 kg of sheet metal ducts.
P3ductal: the best solution for hospitals.... And not only

7 ▶ low noise level
▶ good acoustic behaviour thanks to its sandwich-like structure
▶ vibrations and resonance are blocked by the insulating material
▶ high degree of comfort in the rooms where it is applied.

8 ▶ ease of construction and installation
▶ convenient coded construction and installation procedures
▶ possibility to construct ducts in the factory or directly at the job site
▶ compliance with UNI EN 12097
Civil Hospital, Radiology - Aosta > Anthea Health Clinic - Bari > S. Orosola Hospital, Pharmacy - Bologna > Pizzardi Ospedale Maggiore, infectious disease ward - Bologna > Civil Hospital - Bolzano > National Research Institute Mesagne - Brindisi > ASL 16 Maddaloni Civil Hospital - Caserta > Policlinic - Catania > Hospital - Catanzaro > ASL FG10 Cerignola - Foggia > Rest Home - Forlì, Cesana > Alba Hospital - Cuneo > Hospital - Desenzano > Bra Hospital - Cuneo > Rest Home - Faenza > Cerignola Municipal General Outpatients’ Clinic - Foggia > Life Centre Clinic - Foggia > Hospital - Frosinone > Gaslini Hospital - Genova > Renzetti Civil Hospital, Intensive Care - Lanciano, Chieti > Priverno Civil Hospital - Latina > Fatebenefratelli Hospital - Milano > Niguarda Civil Hospital - Milano > San Gerardo Hospital, blood diseases laboratories - Milano > San Felice sul Tanaro Hospital, operation rooms - Modena > Magarelli Magialetti Clinic - Molfetta, Bari > ASL 19, psychiatry - Cittadella, Padova > Somalia Hospital - Piacenza > Hospital - Pisa > ASL 9 S. Vito al Tagliamento - Pordenone > Civil Hospital - Ravenna > S. Filippo Neri Hospital - Rome > Umberto I Hospital, Neurotrauma ward - Rome > S. Giovanni Persicelo Cardiology ward - Bologna > Savona Hospital Psychiatry ward - Savona > Civil Hospital, operation rooms - Schio, Vicenza > Tissues and Cells Bank, Siena University Hospital - Siena > Le Scotte General Outpatients’ Clinic, clean rooms and operation rooms – Siena > Policlinic - Torino > Civil Hospital, operation rooms - Trani, Bari > Busto Arsizio Hospital - Varese > Civil Hospital - Verona > Italian Association for Rehabilitation and Therapy - Viterbo > Cervello Hospital - Palermo > Gallino Hospital - Genova > Civil Hospital, radiology - Imperia > Fondazione Macchi Hospital, operation room - Varese > Orthopaedic Trauma ward - Torino > Hospital - Empoli, Policlinic - Catania > Hospital - Jesi > Borgosesia Hospital - Vercelli > Causso al Monte Hospital - Varese > Civil Hospital - Mestre, Venezia > Civil Hospital - Nuoro

The installations on the reference list have been carried out with the different solutions offered by the P3ductal panel range.
our references for your safety... also abroad!

Al Jazeera Hospital - Abu Dhabi, Emirati Arabi > Nambour Hospital - > Coomera Medical Center - Australia > Kronauer GmbH - Krankenhaus, Hettstedt > Otto Von Güricke Universität, Medizinische Fakultät - Magdeburgo > Saint Vincent de Paule Hospital - Malta > Saint Philip’s Hospital - Malta > Busan St. Mary’s Hospital - Busan, Korea > Jeonbuk University Hospital - Jeonbuk, Korea > Bashrah Children Hospital - Bassora, Iraq > Hunan Children Hospital - Hunan, China > Hunan Centre Hospital - Hunan, China > Shenzhen Centre Hospital - Shenzen, China > Icu of Shenzen Futian People Hospital - Shenzen, China > Icu of Guangzhou Pharmaceutical Institution Subsidiary Hospital - Guangzhou, China > Operating Room of Guangzhou - Guangzhou, China > Oversead Chinese Hospital - Guangzhou, China > Aspetic Room of Quarantine Bureau - Beijing, Tianjin, Shangdong, Shenyang, Hainan - China > Aspetic Room of Beijing tumor Hospital - Beijing, China
P3ductal six gears...
one system, six solutions.
For fifty years at the service of air

For over three generations now we have operated in the field of ducts systems for the distribution of air conditioning. Pursuing an itinerary of constant technological and commercial development and growth, we have innovated the construction system used for traditional zinc-coated sheet metal ducts, creating our distinctive P3ductal technology, which employs panels of pre-insulated aluminium for both the construction and fitting of air distribution ducts. Our P3ductal system is produced in different plants all over the world, is distributed in over 40 countries and counts on an extensive coverage in the hands of a technical and commercial network to offer qualified support to clients and design engineers in the choice and actual use of our product. In addition, we have created a school for approved duct-makers as a further guarantee of the high standards of workmanship involved in the production of our pre-insulated ducts. Our continual commitment to studying better solutions and to finding innovative solutions in our laboratories, which work in close collaboration with renowned University Research Centres, is further guarantee of state-of-the-art performance and materials. Since 1996, we have operated on the basis of a quality regime compliant with UNI EN ISO 9001-2000.