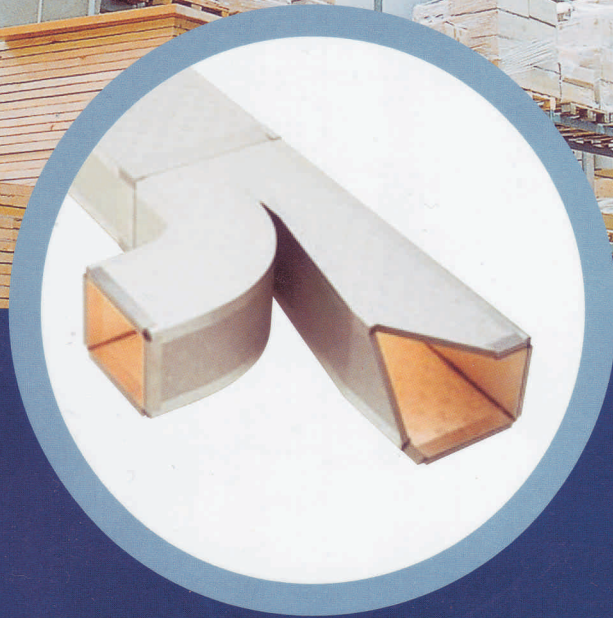
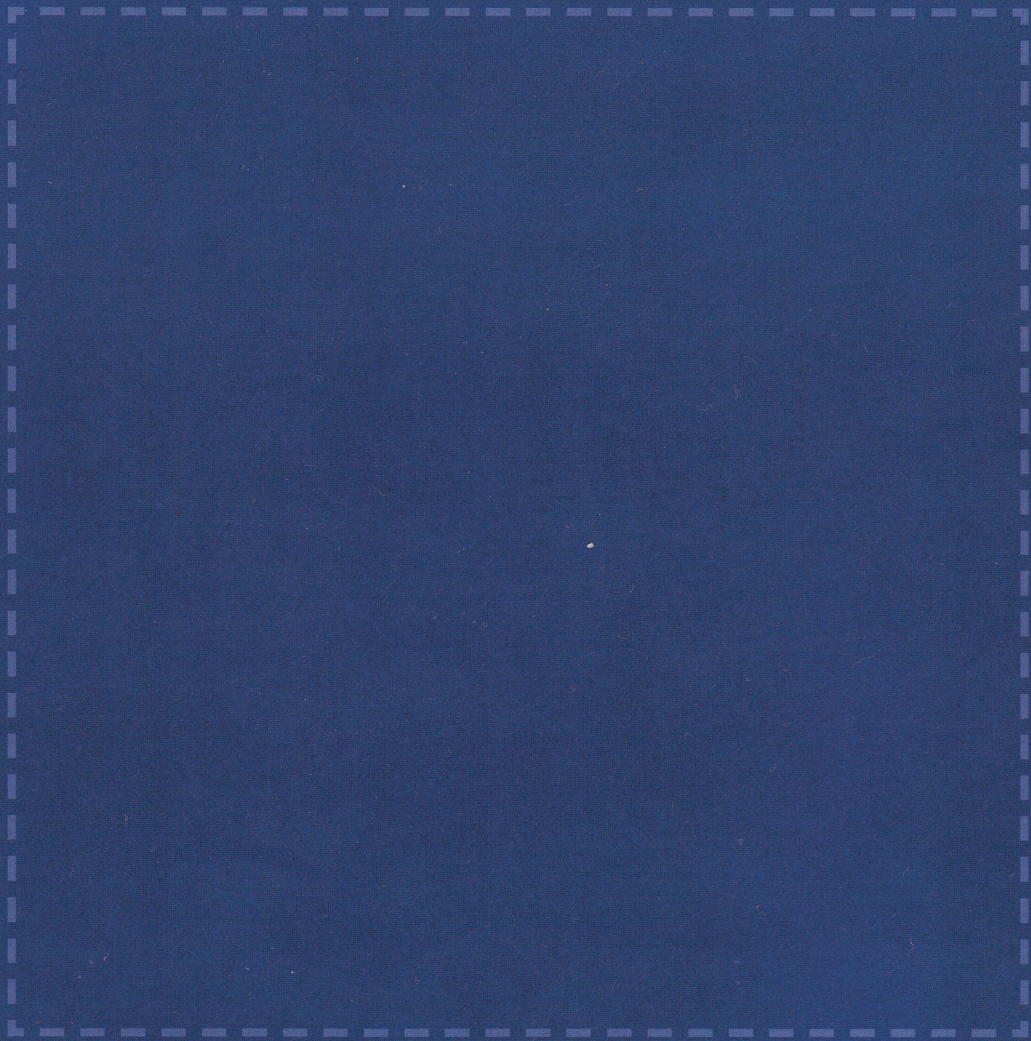


**P3ductal. Technical literature
and software for consultants.**



P3ductal
preinsulated aluminium ducts system



[www.p3italy.it]

P3, a “growing” reality



Air distribution: for over 40 years, in only one sector.

P3 have been operating in the air distribution and air conditioning segments for over 40 years.

P3 is situated in Ronchi di Villafranca, in the province of Padua, just off the Milan-Venice motorway, 10 kms from the city of Padua. The premises occupy an area of approximately 15.500 m², of which 6.500 m² are covered.

The company actually produces their own goods, which is further guarantee of quality.



REG. N. 221-A
UNI EN ISO 9001:2000



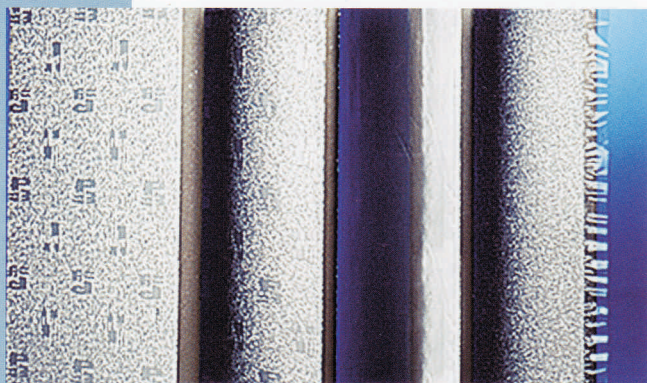
REG. N. 221-E
UNI EN ISO 14001:1996

From the year 1996 on, P3 srl has worked on a quality scheme in compliance with the UNI EN ISO 9002-94, while in 1999, this certification was updated to include regulations UNI EN ISO 9001-94; while in 2003, the company achieved UNI EN ISO 9001:2000 certification. In 2003, P3 srl obtained the certificate for environmental management UNI EN ISO 14001-96. The workshops and the technical staff of P3 are constantly committed to research and to the development of new products: an important example of this is the use of the new **hydrotec** technology.

P3 actually produces their sandwich panels on their own, and these panels always undergo stringent checks to guarantee their long-lasting quality.

P3 currently offers three main lines of products: P3ductal, P3isomac, P3airways.

the P3ductal system



Technological innovation has actually brought about a revolution in air-distribution system.

Today, the old ducts made of sheetmetal certainly find a most innovative rival in the revolutionary pre-insulated aluminium ducts, which have clear technical, constructional and economic advantages.

P3ductal is definitely a leading system in the construction of preinsulated aluminium ducts. For efficient air-distribution, P3ductal guarantees a series of technical advantages which include optimal long-lasting insulation, high hygiene standards, and extremely low noise levels, from total security to maximum reduction of friction loss.

These characteristics are complemented by ease of construction and installation and competitiveness from the economic point of view. The P3ductal system is composed of materials, i.e. panels and accessories for perfect assembly, of especially designed equipment and tools to facilitate each construction phase and of the necessary know-how, regarding both the technical and constructional aspects and the commercial techniques for marketing and sales.

air distribution passes through water



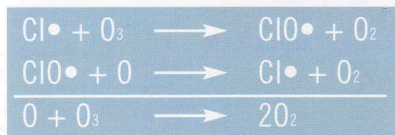
The commitment of P3: quality... always.

In a moment where quality is synonymous with progress, P3 has always tried to improve its products in order to adjust them to the ever-increasing demands from the market. The Piral HD Hydrotec panel represents the result of all these efforts; it is actually produced by P3 using, on an exclusive worldwide basis, the international patent EP 1115771 B1, which makes it possible to **mark the Hydrotec panel with the code ODP=0** (ozone depletion potential equal to zero), which means, "harmless for the ozone layer". The environmental compatibility of the Hydrotec panel was obtained **by using water in the foaming process of polyurethane foam, instead of the gases CFCs or HCFCs**, which account for the destruction of the ozone layer in the atmosphere.

Compliance of the Hydrotec panel with European standards

P3 has worked about 3 years ahead of time, anticipating the application of the European standards on the use of the gases CFCs and HCFCs, whose use for PUR rigid polyurethane has been banned by law since 1st January 2003. **The water-based expansion process makes it possible to reduce ODP and VOC down to zero** (emission of organic volatile substances in the atmosphere during production and the useful life of the panel) and to make **the Greenhouse effect or GWP (global warming potential) insignificant, as it proves to be equivalent to 0,0001.**

Hydrotec, innovative technology!



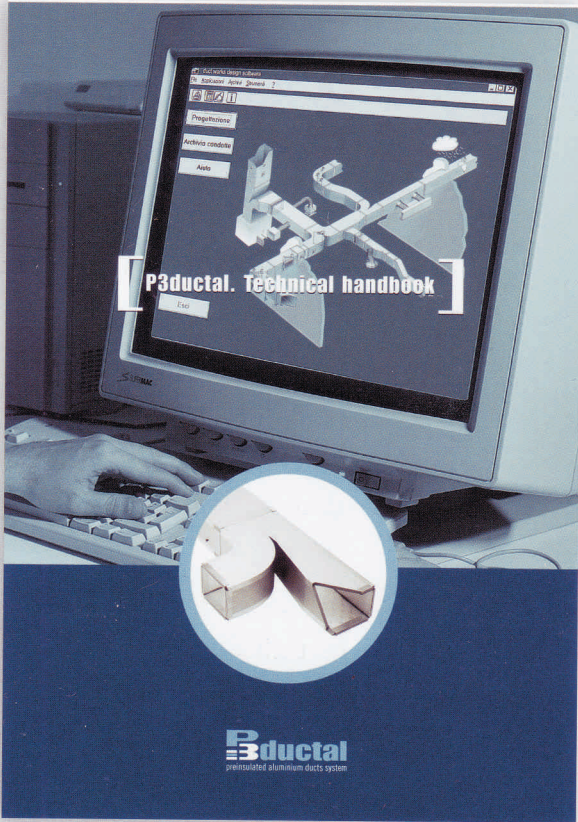
Chlorinated gases, such as cfc's and hcfc's, reach the atmosphere and are hit by ultraviolet radiation, with consequent emission of chlorine radicals by photo dissociation. Later, the chlorine radicals react with the ozone and cause its destruction. In the current technology of polyurethane expansion, the heat produced by the reaction between polyol and isocyanate is

exploited (exothermic) to cause a liquid to evaporate at a low boiling point previously introduced in the mixture. These gases remain, for the most part, trapped in the cellular structure of the polyurethane polymer being formed. As time goes by, the composition of the gas contained in the cells, may vary on account of its natural tendency to reach a balance with the external environment. This process is influenced in a crucial way by the type of the external coatings of the foam, and by the density, the working temperature, the formula, the type of gas, etc. In the case of the new P3 technology, expansion is obtained only through gas generated by the reaction between the isocyanate and water, always in the presence of the reaction between the polyol and the isocyanate, with the subsequent formation of the polyurethane chain.

Hydrotec quality always pays!

The exclusive technology involved in the expansion process of water applied by P3, makes it possible, on the one hand, to obtain **an environmentally-friendly panel** and, therefore compliant with the European regulations in force and, on the other hand, it **considerably reduces the costs involved in the product, without influencing the main features and the salient assets of P3 panels**: no change is made to the traditional P3 panels or to their insulating capacity $\lambda(10^\circ C) = 0,024 W/(m \text{ } ^\circ C)$, **the dimensional stability, their adhesion, the workability and the high percentage of closed cells.**

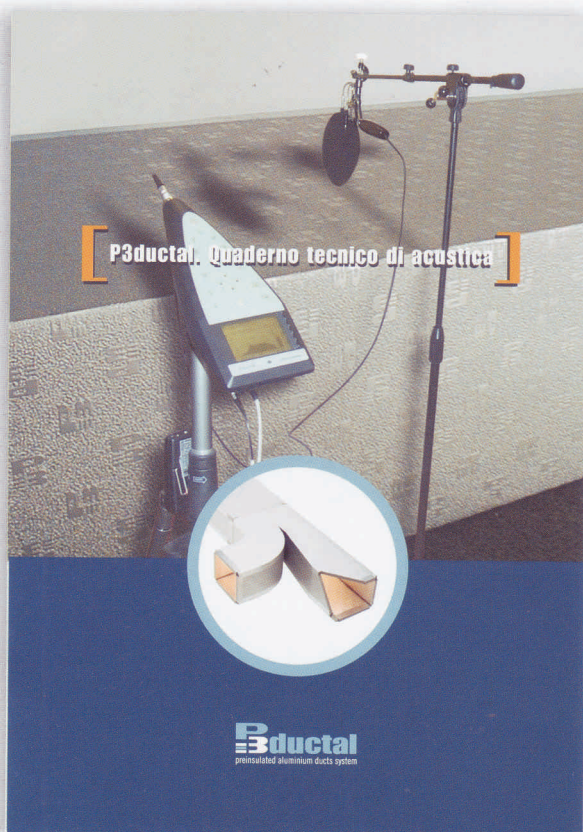
Also the **reaction to fire remains unchanged**, as it is rated as **class 0-1** and proves to be among the best according to what is stated in the D.M. 26/6/84 on the "classification of reaction to fire and homologation of materials for fire prevention".



technical handbook

This is a complete guide for the P3ductal system, a fundamental publication for all those designers who want to fully understand and analyse in detail the technical aspects involved in P3ductal ducts.

The material contained, comprehensive and accurately dealt with, ranges from the rudiments of air physics to the careful analysis of the technical features of the P3ductal system, through to the measuring of surfaces and to the identification and recognition of all economic advantages.



technical handbook of acoustics

With the help of this tool, P3 provides the designer with theoretical and practical formulae which, thanks to the calculation of acoustic reduction, make it possible to identify beforehand those spots in the air-treatment system which may pose problems related to noise and that, as a consequence, require alterations in the design or the introduction of special attenuators. The formulae are aptly supported electronically in the new duct-design software DUCTWARE 4.0 PRO which AUTOMATICALLY calculates the different noise levels at different points in the system and provides correct dimensioning of the ducts.

The handbook also contains an analysis of the theoretical principles at the base of acoustics and the presentation of the results of a number of experimental tests performed on P3ductal ducts, with the aim of proving their particular efficiency even from this point of view.

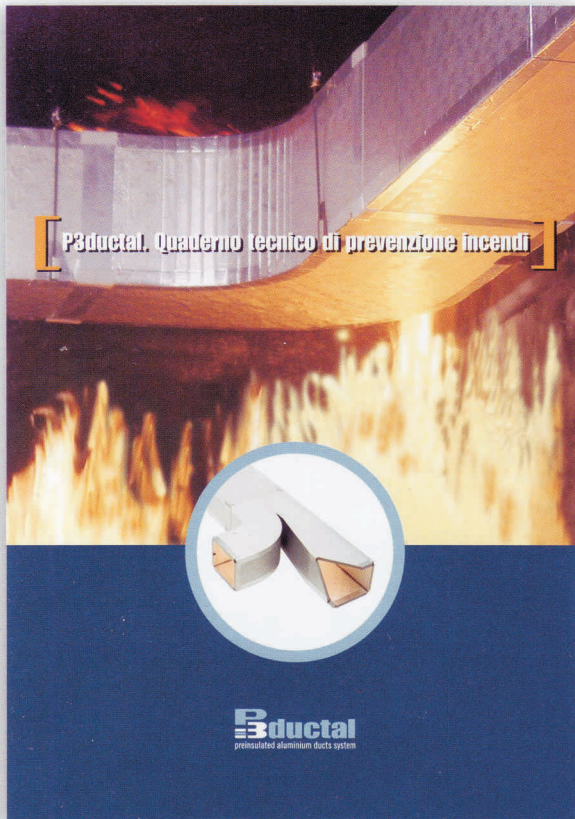
technical handbook for the prevention of fires

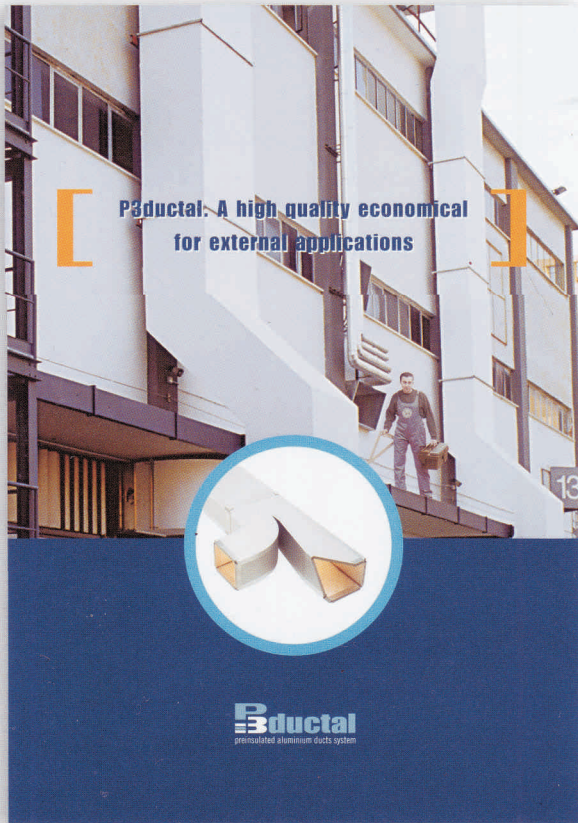
To meet the ever-increasing demands posed by thermal technical designers regarding new aspects of safety and protection against fire, P3 has produced its new "P3ductal. Technical Handbook for the prevention of Fires". This publication lays down the basic principles of fire prevention and analyses the aspects of resistance and reaction of different materials to fire, especially focusing on the ducts for air distribution. Special attention is given to the evolution of the provisions about safety in the event of fire. Great emphasis is laid on the D. M. dated 31-03-2003, vehemently recommended by P3 which, after many years of very little clarity on the subject, regulates and endorses in the clearest of ways the performance and technical validity of the ducts made of pre-insulated aluminium and, therefore, of the P3ductal ducts in their reaction to fire. The central body of the handbook is devoted to the presentation of results of the tests carried out on P3ductal ducts according to regulation ISO 9705 Room Corner Test, which provided further evidence the unquestioned quality of P3 ducts.

duct sizing handbook

This publication includes, with technical competence and completeness in its exposition, the different calculation systems for the design and correct dimensioning of the ducts' system for air conditioning purposes.

Special attention is given to the use of the Ductware software, especially created by P3, in order to give support to designers in practical situations.



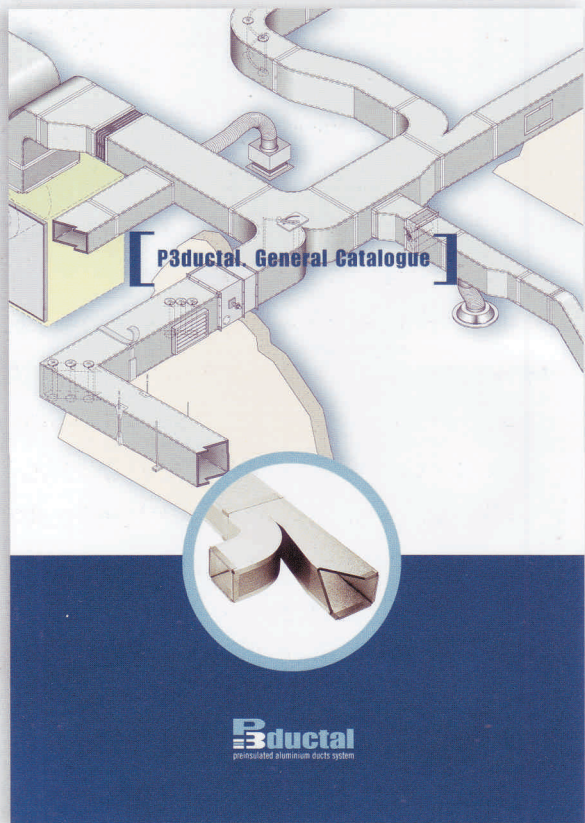


brochure for external applications

This publication gives a detailed illustration of the specific application of the P3ductal system, especially studied for external applications and made up of the Piral HD Hydrotec outsider panel, of the waterproofing “gum skin”, of the original flanging system and of the special glue “outdoor” profiles.

Therefore, the brochure analyses the technical features, especially focusing on the rigidity class and on the snow loads which might occur.

Proper evidence is given to the presentation of the constructional features, with particular attention to the application of the special waterproofing “gum skin”, to the laying of the duct and to the application of the reinforcement systems required.



general catalogue

The modern conception of the P3ductal general catalogue, makes it not only the commercial tool which it is ideal to use for ordering products but also a true guide in the P3ductal universe.

All the products (panels, accessories, tools) are presented according to their use in the constructional process involved in the duct, which is thus carefully illustrated in each of its phases.



cd-rom

The CD-Rom not only contains P3's general presentation as a company and the P3ductal system but also allows quick multi-media navigation of the whole technical and commercial P3ductal documentation.

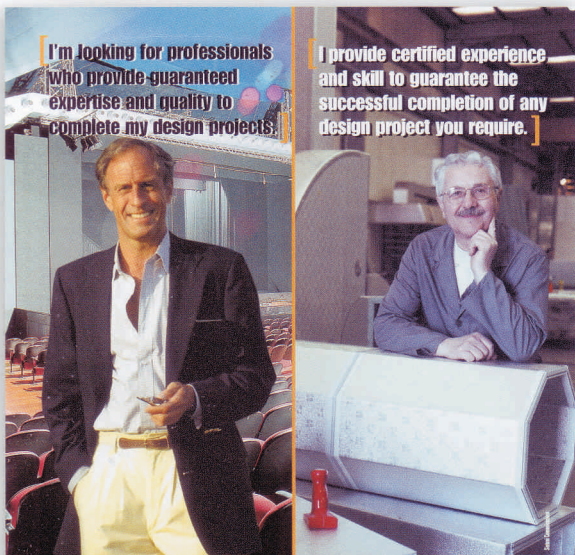
The cd-rom also features a useful demo of the Ductware 4.0 pro software for correct dimensioning of the ducts' systems as well as a demo of the software known as Bravo P3, which serves to produce the basic pieces in an automatic and optimised way, and to produce a series of reports of undoubted usefulness for optimising the constructional phase.

And as part of the full version of Ductware 3.0, you can get the software for dimensioning the ducts' systems FREE OF CHARGE!!

ductware
4.0 PRO

bravoP3

ductware 3.0



Serious projects demand outstanding professionals for successful completion. P3ductal certified professional is the solution required to both accurately implement the ideas of the designer and document the professional skill of the installer. Consultants can be sure of finding a partner with all the qualifications and resources necessary because P3ductal Certified Professional can also rely on a personalised service that adds additional qualification to the skill and quality they offer.

P3ductal preinsulated duct system is the right product. A revolutionary system with high performances, light weight, easy to install; it can be fabricated also at site.

Find your nearest certified ductmaker at www.p3italy.it.

approved duct contractors



Approved duct contractors are professionals in thermotechnics field, who mainly do their jobs as duct-layers using ducts manufactured with the P3ductal system and who carefully follow the procedures suggested by P3 for the correct construction of P3 ducts. **They work** in a highly professional way, which gives guarantee of the results achieved. In order to be approved, these ducts-contractor must be in a position to offer high standards of workmanship as well as suitable structures and professionalism. Competent working teams with great experience, even when this is particularly demanding: an approved duct-contractor works using equipment, tools and materials guaranteed by P3. **They guarantee** the state-of-the-art construction and perfect installation of P3 ducts. The proven competence and professionalism of the duct-contractor guarantee security in the result and also protect the work of the designer, who will, therefore, see his own ideas and projects accurately realised. **Ask** P3 for the updated list of approved duct-contractors, or visit www.p3italy.it in order to find the duct-contractor who is closest to you.

The P3ductal system has already been installed in:



Hospitals

[**Reparto di Psichiatria**, Padova, Italia. **Ospedale Civile di Schio**, Vicenza, Italia. **Ospedale Civile di Bolzano**, Bolzano, Italia. **Al Jazeera Hospital**, Abu Dhabi, Emirati Arabi. **Saint Vincent De Paule Hospital**, Malta. **Saint Philip's Hospital**, Malta. **Ospedale Civile**, Cerignola (FG), Italia. **Nambour Hospital**, Australia. **Coomera medical Center**, Australia.]



Office blocks

[**Centro direzionale Cristal Palace**, Brescia, Italia. **Telemalta Corporation**, Malta. **Air Malta Co Ltd**, Malta. **Centro Direzionale e Commerciale**, Latina, Italia. **BMW Offices**, Australia. **The Sonmez Shopping Center**, Bursa, Turkey. **Federal Police Headquarters**, Australia.]



Airports

[**Centres Technico-Opérationnel de Tunis-Air**, Djerba, Tunisia. **Aeroporto Caselle**, Torino, Italia. **Aeroporto Marco Polo**, Venezia, Italia. **Dublin International Airport**, Dublin, Irlanda.]

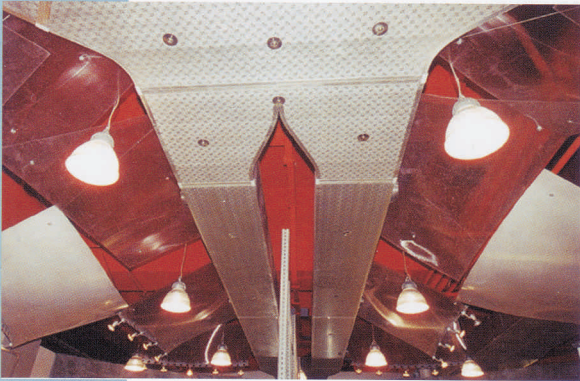
Shopping centers

[**The Sonmez Shopping**, Bursa, Turchia. **Centro Commerciale Giotto**, Padova, Italia. **Centro Commerciale Vimodrone**, Milano, Italia. **The Valdi Shopping Center**, Russia. **Centre Commerciale Neapolis**, Nabeul, Tunisia. **Ipermercato**, Sassuolo (MO), Italia. **A-Mart All Sport**, Toowomba, Brisbane, Oxley, Australia. **Currambine Marketplace**, Perth, Australia.]



University, schools and institutional buildings

[**Euratom (Centro Europeo di ricerca Nucleare)**, Varese, Italia. **Universade do Porto Fac. Arquitectura**, Portogallo. **Athlone Court House**, Irlanda. **The Italian Aerospace Center**, Malindi, Kenia. **Maracaibo International Museum**, Maracaibo, Venezuela. **Malta Maritime Authority**, Malta. **University of Malta**, Malta.]



The University of Porto - Faculty of Architecture, Porto, Portugal. Melbourne University school of Botany, Melbourne, Australia.]

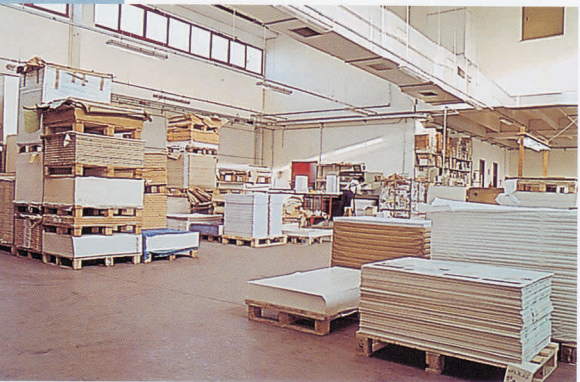
Banks

[Cassa di Risparmio di Padova e Rovigo, Padova, Italia. Caveau per Banca Commerciale Italiana, Milano, Italia. Mid-Med Bank Ltd, Malta. Lohombus Bank, Malta. Bank of Valletta Ltd, Malta. Banca Popolare di BG e VA, Varese, Italia.]



Food-processing centers

[Latte Ala, Ferrara, Italia. Lavorazione Lattebusche, Belluno, Italia. Industria Alimentare Bauli, Verona, Italia. Industria Alimentare Barilla, Italia. Macello Sival Carni, Vicenza, Italia. Nestlé Tunisia, Tunisia. Macello di Carpi, Carpi (MO), Italia. Industria Dolciaria Gazzoni (Dietorelle), Bologna, Italia. Cadbury - schweppes, Melbourne, Australia. S.C.&W. CO-OP (Dairy Production), Melbourne, Australia.]



Industrial activities

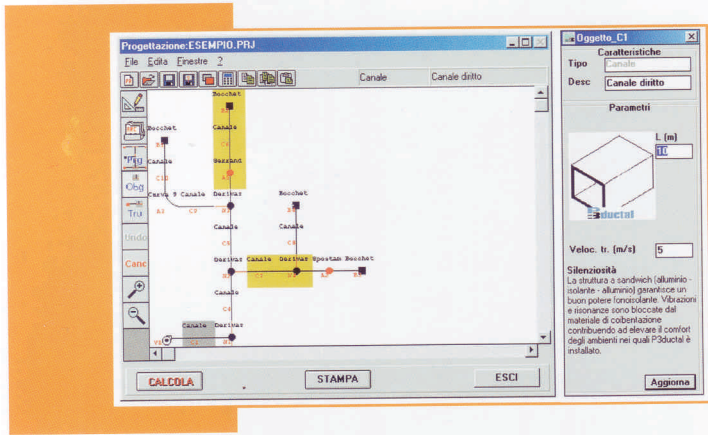
[Center Offset, Belgio. Roederstein Portugal, Portugal. Capsugel, Belgio. Caves Da Raposeira, Portugal. Dow-Chemie, Belgio. Philip Morris Inc. Industries, Spagna. Cardiomedix Ltd, Malta. Petrochemical Industries Co. (P.I.C.), Shuaiba, Kuwait.]

Restaurant and hotels

[Batalha Hotel, Porto, Portugal. Mc Donald's, Belgio. Hotel Milano Due, Malta. Hotel Qawra Palace, Malta. Hotel Preluna, Malta. Hotel Amina, Kairouan Tunisia. Ivanhoe Hotel, Australia. Skyways International Hotels, Malta.]



a course on ducts: objectives and contents



The technology regarding air distribution is only relatively known and still has some gaps. Irrespective of the materials chosen, (preinsulated aluminium, sheet-steel, both rectangular and spiraloid) **the elements that act as distinctive features in an effective ducts system are suitable dimensioning and perfect laying.** P3, a leader on the market of preinsulated aluminium ducts, has always **made its technical expertise the philosophy underlying the company, making available to architects and ducts layers the company's own long years of experience in order to form competent and professional workers.** From its leading position in the field of ducts, P3 has

launched for a long time now, its own **exclusive training courses, aimed at all the professionals in the thermotechnical segment** who are day by day confronted with problems related to the ducts systems. These courses offer **a complete training cycle, consisting of a theoretical module for dimensioning** (open to designers in thermotechnics, architects, etc.) **and a practical one for actual construction of the ducts** (specifically designed for duct-layers). These two modules may be attended in one block lasting three days or separately (dedicating one day to the dimensioning course and two to the construction one). **The venue of the courses is P3's headquarters in Ronchi di Villafranca (Prov. of Padua)** which has opened up new operative and production structures and offers the facilities of a modern and functional meeting room for theoretical classes and an extremely well-equipped workshop for practical work and testing. "Canalizzando" is made up of two different areas which complement each other:

- **dimensioning** – theoretical part based on dimensioning of the ducts both through the teachings of the rudiments of air physics and through the presentation of the instructions for use and application of "ductware", the software used for dimensioning.
- **constructing** – this is the practical part of the course. It develops mainly on testing done in the workshop, aimed at illustrating the correct construction procedures and the actual laying of the ducts.

"Dimensioning" is intended for designers, for the technical offices of building companies and for all those who do designing and dimensioning of the air conditioning system and of the air distribution system, in particular. "Constructing" is intended for all those whose main activity is the assembly, fitting and laying of P3ductal ducts; which is to say duct-layers and installers.

Programme of the course known as "dimensioning"

- classification of systems: speed and pressure
- air movement inside the ducts: laminar and turbulent
- friction loss: linear or in distribution - localized or accidental
- air speed: recommended values and minimum values
- air flow capacity
- dimensioning of ducts: method involving speed reduction – method involving constant linear friction loss – method for retrieval of static pressure
- presentation and instructions for use of the dimensioning program "ductware".

Duration

- 1 day (Wednesday)

Materials handed out

- ductware software
- P3ductal dimensioning handbook
- P3ductal technical handbook

form for requesting P3ductal documentation

to be faxed to No. (0039) 049 9070302

Study / Company

Send "For the attention of":

Street

City

Prov.

Zip Code

Ph.

Fax

e-mail

PUBLICATION		CODE
<input type="checkbox"/>	Technical Handbook P3ductal	TS00404G
<input type="checkbox"/>	Technical handbook of acoustics P3ductal	TS01000G
<input type="checkbox"/>	Technical handbook for fire prevention P3ductal	TS01100G
<input type="checkbox"/>	Handbook for duct dimensioning P3ductal	TS00700G
<input type="checkbox"/>	Brochure for external applications P3ductal	TS00900G
<input type="checkbox"/>	General Catalogue P3ductal	CS01200G
<input type="checkbox"/>	Cd-rom P3ductal	TS00104G
<input type="checkbox"/>	Brochure for courses P3ductal "Canalizzando"	CS01100G

SINCERT

EN 45012 Reg. n° 007A e n° 010D



CERMET

QUALITY SYSTEM CERTIFICATE

THIS IS TO CERTIFY THAT THE QUALITY MANAGEMENT SYSTEM OF THE COMPANY

P3 S.r.l.

Via Don Giovanni Cortese, 3 - Ronchi di Villafranca PD

ITALY

REGISTRATION No. 221 - A

CONFORMS TO THE

ISO 9001 - 2000 STANDARD

FOR THE FOLLOWING PRODUCTS/SERVICES:

**THE DESIGN AND CONSTRUCTION OF INSULATING SANDWICH PANELS,
THE EQUIPMENT AND ACCESSORIES FOR THE WORKING OF SUCH
PANELS AND THE TRAINING OF THE USERS**

The continuance of possession of the certification is subject to annual survey and dependent upon the observance of CERMET regulations.

MOD. PO 22A rev. 1.1

certificate issuance date: 1996-12-18

last modification date: 2003-02-13

following renewal date: 2006-02-13

General Manager
Rodolfo Trippodo, Engineer

CERMET - 40057 Cadriano - Granarolo E. (BO), Via Cadriano 23
00175 Roma, Via dei Mamili 18

10144 Torino, Via Livorno 60 - c/o Environment Park, Palazzina B2 Laboratori

TSU0801G-03/2003-1000



ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFICATE

THIS IS TO CERTIFY THAT THE ENVIRONMENTAL MANAGEMENT SYSTEM OF THE COMPANY

P3 S.r.l.

Via Don Giovanni Cortese, 3 - Ronchi di Villafranca PD

ITALY

REGISTRATION No. 221 - E

CONFORMS TO THE

ISO 14001 - 96 STANDARD


FOR THE FOLLOWING PRODUCTS/SERVICES:

**THE DESIGN AND CONSTRUCTION OF INSULATING SANDWICH PANELS,
THE EQUIPMENT AND ACCESSORIES FOR THE WORKING OF SUCH
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MOD. PO 22E rev. 1.1

certificate issuance date: 2003-02-13
last modification date: 2003-02-13
following renewal date: 2006-02-13

General Manager
Rodolfo Trippodo, Engineer


CERMET - 40057 Cadriano - Granarolo E. (BO), Via Cadriano 23
00175 Roma, Via dei Mamili 18
10144 Torino, Via Livorno 60 - c/o Environment Park, Palazzina B2 Laboratori

P3 srl - Via Don G. Cortese, 3 - 35010 Ronchi di Villafranca, Padova - Italy - Telefono 049.90.70.301 Fax 049.90.70.302

E-mail: p3italy@p3italy.it Internet: www.p3italy.it



REG. N. 221-E
UNI EN ISO 14001:1996

SINCERT



REG. N. 221-A
UNI EN ISO 9001:2000

P3ductal
preinsulated aluminium ducts system