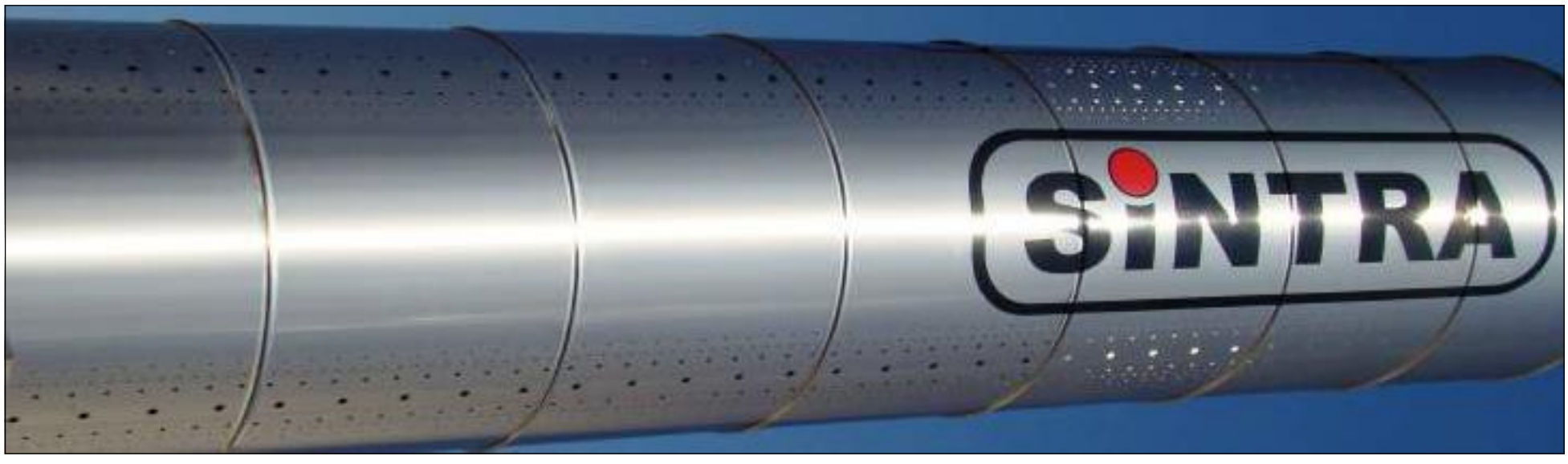
SINTRA

SISTEMI INNOVATIVI DI TRATTAMENTO ARIA AMBIENTE

MIX-IND® TECHNOLOGY



GIORNATE di FORMAZIONE ed AGGIORNAMENTO TECNICO

Technical meetings on the theory, evolution and application of ambient air drive in the field of air distribution systems of HVAC systems.

The ambient air DRIVE technology responds to very different technological criteria from those of supply air diffusion.
In DRIVE systems, the basic principle is to use the supply air to set **in motion the entire** volume of ambient air in the desired direction and at the desired speed.
To achieve this purpose, special perforated channels called **PULSORS®**, or more precisely **DLP® (Linear Pulsion Devices),** are used, capable of creating a "pressure field" along its axis, so as to be able to impart a thrust to the **totality** of the ambient air mass in such a way as to set it in motion at the desired speed.
A **DLP®** consists of a textile or metal ducting, preferably circular in shape in order to better facilitate the induction of air from the surrounding environment.
A special hole is applied to the wall of the PULSOR®, consisting of two types of holes:
The smaller induction holes determine the amount of air to be drawn in by induction from the surrounding environment in order to mix it perfectly with the supply air.
The larger guide holes determine in which direction, at what speed and at what distance to direct the pre-mixed ambient air mass from the induction holes.
The speed of air exit from the holes with respect to their diameter, the distance between them, their position on the **DLP® wall**, the position of the **DLP®** in the room and the minimum and maximum temperature differences in the flow rate, determine the ability of the **DLP®** to create the necessary "pressure field".
By operating in this way, it is possible to "push" the air mass of the environment to distances far beyond the launch capacity of any type of diffusion terminal, which will always meet the resistance of the ambient air to reach the desired distance. With DRIVE technology, every minute or so, all the ambient air completes its circuit in the room and then returns to the "depression zone" of the **DLP®** to mix again with the supply air.
By operating in this way, the moving air flow perfectly homogenizes all the temperatures present in the environment, easily overcoming all the obstacles it encounters along its path.


SINTRA TRAINING ROOM WITH DEMONSTRATION FACILITY

To introduce, illustrate and deepen the technology of the Drive and its applications, SINTRA provides three different levels of in-depth study:

1st level:
AMBIENT AIR DRIVE

2nd level:
NEW GENERATION SYSTEMS

3rd level:
TECHNIQUES of DESIGN FOR SPECIFIC APPLICATIONS

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1st level day : AMBIENT AIR DRIVE

Comparison between supply air DIFFUSION and ambient air PULSION
- Principle of DIFFUSION
- Diffusion with vents and diffusers - known problems
- Diffusion with long-range nozzles - known issues
- Differences between diffusion and drive
- Principle of DRIVE
- The DRIVE of ambient air
- Micro-turbulent flow induction principle
- Performance
- Needs
- Installation heights and horizontal casts
- 1st video - visualization of the drive effect by means of a smoke bomb
- 2nd video - Smoke bomb for application with 35 meter side throw
- 3rd video - Smoke bomb in 8,000 m2 exhibition pavilion 11 meters high
- 4th video - Disney Paris smoke bomb – high building (32 meters)

Evolution of MIX-IND® technology
- Filing of the first patent, basic research and applied research
- Establishment of SINTRA, for the development of MIX-IND® technology on the market
- From fabric to metal - introduction of the SPIROPACK™ patent
- The laboratory offices and laboratory-plants, and their Demonstration Plants
- Definition of the new generation plants that can be built with the advanced technologies of the Pulsion
- DLD high induction perforated ducts, for supply air diffusion
- The new organization to support the designer: technical orientation and assisted design

Presentation of new generation plants (subject to in-depth study on the 2nd level days)
- Sintra Plant - Metal Department
- Sintra Plant - Fabric Department
- Sintra Offices - technical office and sales office
- Sintra Offices - management
- Sintra Offices - Reception
- Sintra Offices - training room
- "Phenomenon" performance hall
- Stabilimento I"pages"
- Car dealership "Auto Arona" - Audi department - BMW department - workshop

Working lunch in the "Phenomenon" room (near the headquarters) with a visit to the plants

Visit to the demonstration plants

Smoke bomb test at the metal department of the Sintra plant Open discussion on the topics presented during the day

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2nd level day: **NEW GENERATION PLANTS**

The meeting aims to examine in depth all the new generation plants presented and visited during the 1st level meeting and other important cases, built or planned.

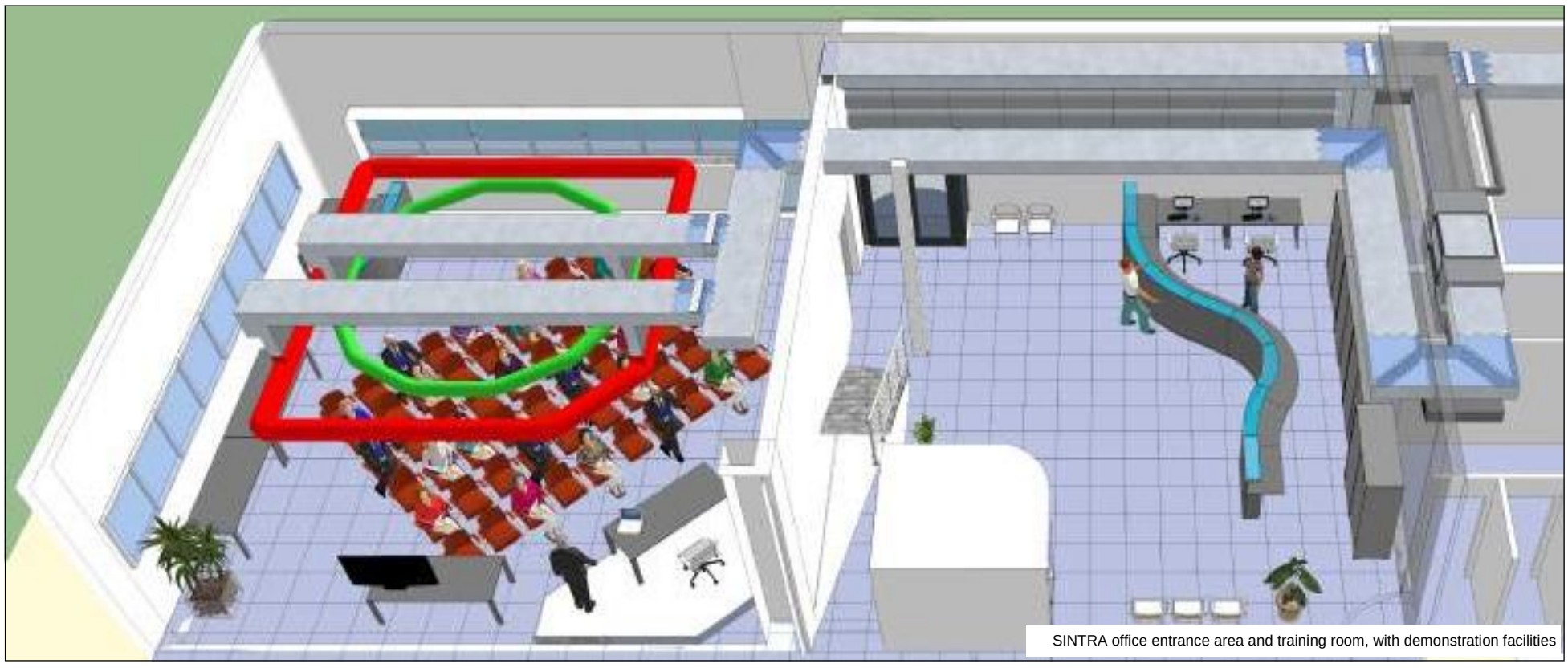
During the day, the design aspects inherent in the application, in the aforementioned plants, of the concepts of:

VARIABLE COMFORT: understood as the ability to easily vary the residual speed on the ground, always maintaining maximum homogeneity of temperatures in the environment, both vertical and horizontal.

MINIMUM ENERGY: intended as the maximum energy saving technically possible, always maintaining the maximum desired comfort conditions and completely eliminating all energy waste, related to the constant air flow, heat stratification and start-up time.

MULTIFUNCTION: understood as the ability to easily adapt to the different user profiles without any loss of performance, both energy and comfort.

For each of the proposed case studies, the new automatic regulation system designed by SINTRA will be examined in depth, which allows to manage the performance possible with the New Generation systems.



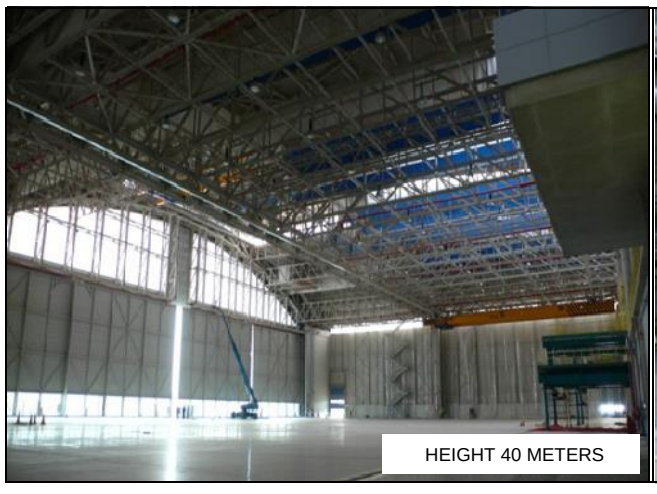
SINTRA office entrance area and training room, with demonstration facilities

3rd level day: **DESIGN TECHNIQUES**

The meeting aims to develop the knowledge of advanced MIX-IND® technologies applied to plants with special needs, and to study the solutions that can be applied in them.

The types of systems referred to in the REQUEST FOR PARTICIPATION are indicative for recurring cases.

Of great interest to SINTRA and to the technicians will be those topics, which you propose on the basis of common interests, which will allow you to tackle complex problems solved with the help of new technologies.



HEIGHT 40 METERS

VARIABLE GEOMETRY SYSTEM REPLACEMENT

DATA PROCESSING CENTER

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REQUEST FOR PARTICIPATION

TO THE TRAINING AND TECHNICAL UPDATING DAYS

APPLICANT

Mr.:..... Age: ……...

Society:.....

Function:..... Tel: ……

Email:.....

Designer Installer
Architect Student
End User
Lecturer in .....

Please indicate below how many and which training days are of interest to you:

X 1st level **AMBIENT AIR DRIVE**

2nd level **NEW GENERATION SYSTEMS**

3rd level **ENVIRONMENTAL DIAGNOSIS AND DESIGN TECHNIQUES**
(please indicate your interest in learning more about the topics listed below)

Retail, supermarkets, commercial environments
Special environments (swimming pools, theatres, conference rooms, metrology rooms, data centres)
Energy upgrading of existing industrial plants
Environments with high endogenous heat production
Specific pollution plants (foundries, furnaces, etc.)
Storage warehouses (pharmaceuticals, food, etc.)
Applications in the automotive industry.

Variable flow systems
Energy requalification of existing systems Large volume environments
Supersaturated air systems
Fluid dynamic analysis of DRIVE
Other ……
……
……

NOTES

The training days take place without obligation and free of charge in the Training Room of the SINTRA Laboratory Offices. The information required on this form has the sole purpose of subjectively defining the applicant's professional profile.
The invitations for each individual training day will be organized by SINTRA only upon reaching an adequate number of professionals with a homogeneous professional profile.

AREAS OF SPECIALIZATION:

Residential systems
Supermarkets, Retail
Swimming pools, Sports facilities White rooms, hospitals Tertiary sector in general Industrial environments :
Industry Type : ..... Comfort systems
Process plants
Other.....
……

Space reserved for SINTRA

Date of receipt requested ……...

Date for training day ……...

Approval of the ..... commercial management

Date and signature of the area agent	**Date and signature of the applicant**

SINTRA s.r.l., in its capacity as data controller, in accordance with the provisions of the Code regarding the protection of personal data (Legislative Decree 196/2003), informs you that the data requested, stored in its archives, will be processed using manual, computer and telematic tools "pursuant to Article 13 of the aforementioned Legislative Decree" for the sole purpose of sending them, As per your request, confirmation of registration for the training days: the provision of your data is therefore necessary to achieve the purpose of the processing. Sintra also informs you that, in relation to the aforementioned processing, you may exercise the rights referred to in art. 7 of Legislative Decree 196/2003 by contacting the person responsible for the processing of your data, Mr. Marco Zambolin, by email / telephone (sintra@mix-ind.it - 0322 863601).

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