

Founded on Innovation

DADANCO began its operations in 1995 to manufacture, under license, induction air conditioning equipment incorporating patented technologies developed by The University of Adelaide.

The principle of induction air conditioning - using a treated primary air stream to induce a secondary air flow through a local heating or cooling coil - has been employed by system designers and equipment manufacturers for many years.

Existing perimeter zone induction air conditioners, installed in countless thousands of commercial buildings during the 50s, '60's and '70s, are unable to cope with the increasing cooling demands of office equipment and current noise level standards. New developments in this system have been few - until now.

Patented DADANCO technology, specially developed to solve noise and capacity problems in perimeter air conditioning systems, utilises the latest in Fluid Dynamics research to improve by up to 77% the efficiency of induction air conditioners, lower air-conditioner background noise by up to 15 dB, reduce maintenance and running costs, and lower environmental impact through reduced energy usage.

The technology has been recognised in the scientific community and granted world-wide patents. We believe it has extensive ramifications for building construction and commercial property maintenance industries.

Building and property owners, managers and developers have been among the first to realise the potential of the new technology. Property managers can stem the loss of tenants through outmoded air conditioning and property developers now have a low-cost, efficient alternative to current conventional air conditioning systems.

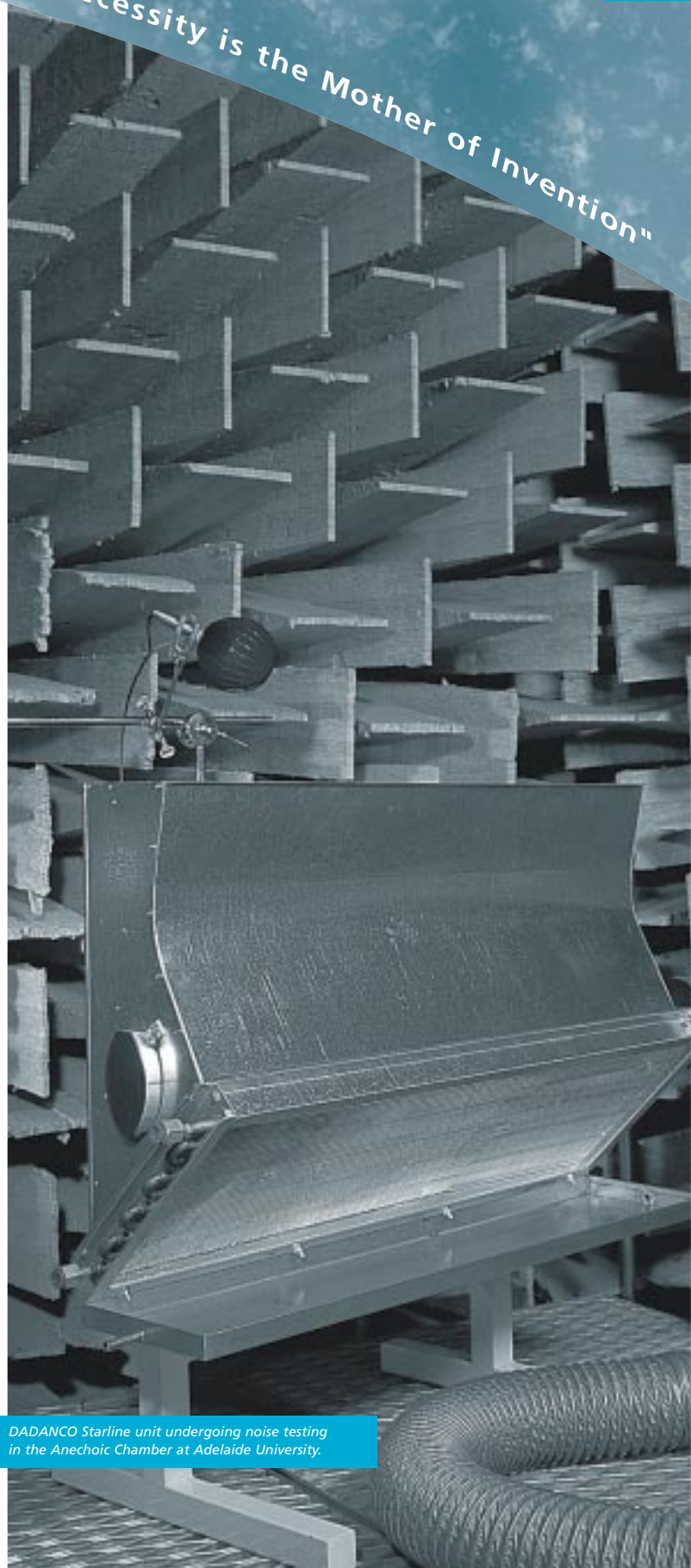
To meet the growing demand for the product, DADANCO has established a research, manufacturing, distribution and sales facility at Thebarton, Adelaide that produces DADANCO Starline technology and air conditioning systems. The company has also established joint ventures, DADANCO Singapore Pte Ltd, to serve the Asian market and DADANCO (Europe) Ltd based in London.

Our strong Research and Development Department ensures that the performance of all products is kept ahead of expectations without compromising consistency and quality within each product line.

Our Starline product range continues to expand through incorporation of our innovative technologies into new products, each of which is subjected to intensive testing and manufacturing standards of the highest quality.

DADANCO's staff consists of a team of dedicated professionals with a wealth of knowledge in the design of air conditioning equipment. Our aim is to provide our clients with the best possible solutions through innovative design and imaginative use of intellectual property.

"Necessity is the Mother of Invention"



DADANCO Starline unit undergoing noise testing in the Anechoic Chamber at Adelaide University.

Product Story: STARLINE



Vladimir Petrovic DADANCO Profile

Vladimir Petrovic is DADANCO's Managing Director and the co-inventor of the technology that is incorporated into DADANCO's air conditioning systems.

Vladimir emigrated from former Yugoslavia to Australia after obtaining a Degree in Engineering with a high distinction and receiving a Scholarship to study his PhD in Australia.

Following the discovery and development of the new technology while studying at the University of Adelaide, Vladimir started up DADANCO Pty Ltd, in partnership with Professor Sam Luxton, in South Australia in 1995.

To enable him to run the new business, Vladimir completed a Director's course, run by the Australia Institute of Company Directors, and employed business consultants to create a business plan for the new company.

"My goal with DADANCO is to establish a long lasting, durable business that will keep on growing and provide staff with an enjoyable worthwhile workplace, and to provide clients and the community as a whole, with environmentally sound solutions and products that will make their business more profitable and their lives more comfortable."

"I have a strong belief in DADANCO's ability to create new concepts within engineering frameworks and to put them into practice by recognising the need first and then finding the solution through a combination of scientific research and commercial realism."

STARLINE perimeter air conditioning units incorporate DADANCO's patented technology comprising the novel high-performance nozzle, the specially profiled internal ducting and passive noise control features.

STARLINE makes it easy and cost effective to provide individual temperature control to each perimeter office.

STARLINE's compact dimensions and intrinsically small duct sizes offer real savings in ceiling space requirements.

STARLINE systems can be designed to operate without the cost and co-ordination of condensate drains

STARLINE is suitable for use in the following:

- Office buildings
- Hotels
- Hospitals
- Schools
- Airports
- Passageways, etc...

STARLINE FM Unit



STARLINE CM Unit

Standard Starline units:

STARLINE CM: designed as a ceiling-mounted downward discharge unit with compact dimensions to keep ceiling spaces to a minimum height, 300-350mm.

STARLINE FM: designed to be installed under a window sill as a wall- or floor-mounted upward discharge unit.

Optional units are:

STARLINE HM: suitable for hotel rooms, designed as a ceiling mounted, horizontal discharge unit.

STARLINE Axx: super low-noise versions of the CM, FM and HM units for applications where very low noise levels are desired, e.g., hospitals, libraries. These feature passive noise control through incorporation of porous, noise-attenuating materials.

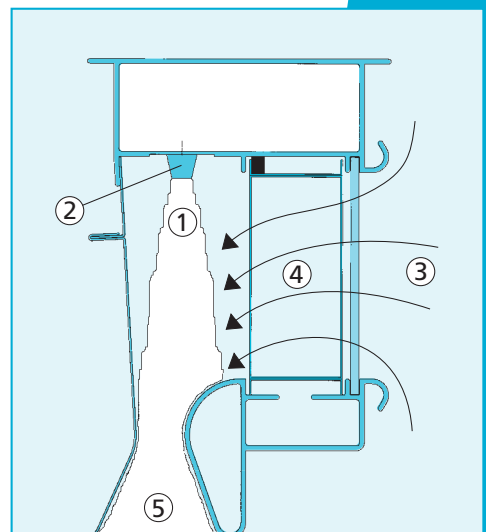
How it works

The Starline perimeter unit relies on the discharge of a primary stream of conditioned air (1) through primary air nozzles (2) at high velocity. The jets entrain air from within the confines of the Starline unit causing the pressure therein to be reduced. This reduction in pressure induces a stream of air (3) to flow into the unit through the secondary heat exchanger (4). The mixture of primary and the cooled secondary air streams (5) is then discharged into the conditioned air space via a short, optimally designed wide-angle diffuser.

The jet created by the new Starline nozzles develops lower pressures in the Starline unit than those which can be achieved by conventional nozzles and greatly enhances the entrainment of the surrounding air through the secondary heat exchanger. The more efficient entrainment reduces stresses within the jet and so reduces noise generation.

Further increases in efficiency were obtained by redesigning the internal profile of the mixing chamber to create a "Venturi throat", and by critical alignment of the nozzles.

Alignment of the jets with the crest (or crests) of the Venturi throat produces a "Coanda effect" that boosts the efficiency of the outflow of air into the room space.



Benefits of Starline Technology.

The combined effect of the two patented components raises the unit's efficiency by up to 77% and reduces noise levels by up to 15dB. Noise levels of NR28 can be achieved

Another benefit of the new technology is that it also lowers the demand in primary air pressure. For a given capacity, Starline perimeter units consume less power as the primary air pressure can be reduced by up to 150Pa lowering energy consumption.

This means that, in new system installations, smaller ducting can be used which subsequently reduces the ceiling space required to about 350mm.

This feature is of great importance to architects and property developers. By applying DADANCO technology to new installations, architects, property developers and construction companies can reduce ceiling space and lower slab to slab dimensions to add one extra floor for every 12 proposed in the same building envelope. Plant room sizes can be reduced by about half while maintaining the same air-con efficiency.

Apart from the rental profitability implications in commercial structures, it also means that an architect planning a hospital, for example, can increase the number of wards and beds in the same building height without significantly adding to the construction costs.

A Starline system allows for individual temperature control of each perimeter office or room and can be designed to operate without the cost and co-ordination of condensate drains.

Where a Starline system is chosen to replace an existing system, old floor mounted units can be replaced with Starline ceiling units providing up to 15% more lettable space.

Another important feature of the Starline system is that it provides the owner with a low cost, low maintenance air conditioning solution that can achieve a payback time as short as five months due to savings on capital outlay, energy and operating costs. Maintenance costs on a Starline unit can be as little as one quarter of conventional air conditioning systems.

Case study: The Capita Building

A Capital Idea Put Into Practice

The development of this new air conditioning technology was really a matter of being in the right place at the right time, according to Vladimir Petrovic, DADANCO Managing Director.

In 1995, Vladimir was working on a Ph.D. Fluid Dynamics project with Professor Sam Luxton at the University of Adelaide when the University management proposed a problem that needed to be urgently addressed.

The 13-floor Capita Building - on the corner of North Terrace and Pulteney Street - owned by the University was being vacated by government tenants because of new regulations concerning temperature and noise in the building. As Sam Luxton was the Professor of Mechanical Engineering at the Uni, the job to find a solution was passed on to him.

The Capita Building is served by a perimeter induction air conditioning system installed in the late 70's.

Vladimir and Professor Luxton conducted experiments, based on Fluid Dynamics research, and from these they developed a nozzle design that significantly increased the entrainment of air through the induction heat exchanger and dramatically lowered noise levels.


They also re-designed the mixing chamber profile to further reduce pressure in the chamber which greatly increased the unit's efficiency.

Armed with 'refurbishment kits' of new nozzles and clip-on devices to alter the chamber shape, they retro-fitted each of the 557 ceiling-mounted units in the thirteen storey Capita building in one weekend.

Mr Petrovic said that the results were very close to what they expected with the existing system and ducting: around 5-10dB reduction in noise and more than 30% increase in efficiency.

The result was far better than the building owners had anticipated and effectively stemmed the exodus of tenants. The Capita Building is now almost fully tenanted and enjoying a new lease of life.

On the strength of the Capita Building success, Vladimir and Professor Luxton formed DADANCO and instigated a program of research and development to further improve and market the technology.



Vladimir Petrovic, DADANCO Managing Director, with an induction air conditioning "refurbishment kit" similar to one of the 557 that saved the air conditioning system in Adelaide's Capita Building.

Table of benefits.

DADANCO Provides:

- Research
- Development
- Product design
- Modern manufacturing methods
- Engineering solutions
- Best products

Spanning the disciplines of:

- Aerodynamics
- Acoustics and noise control
- Psychrometrics
- Heat and mass transfer
- Refrigeration
- Process integration and optimisation
- Computational fluid mechanics
- System simulation
- System analysis and control
- Testing to international standards

For the worldwide air conditioning market involving:

- Consulting engineers
- Architects
- Property owners
- Property developers
- Hotel owners
- Facility managers
- Plant engineers
- Contractors

in the design of air conditioning for:

- Office buildings
- Hotels
- Hospitals
- Schools
- Airport lounges.

www.dadanco.com.au

DADANCO PTY LTD
2/49 Holland Street, Thebarton
South Australia 5031
Telephone +61 8 8351 9734
Facsimile +61 8 8351 9735

DADANCO SINGAPORE PTE LTD
15 Scotts Road #09-04
Thong Teck Building
Singapore 228218
Telephone +65 735 4795
Facsimile +65 735 5420

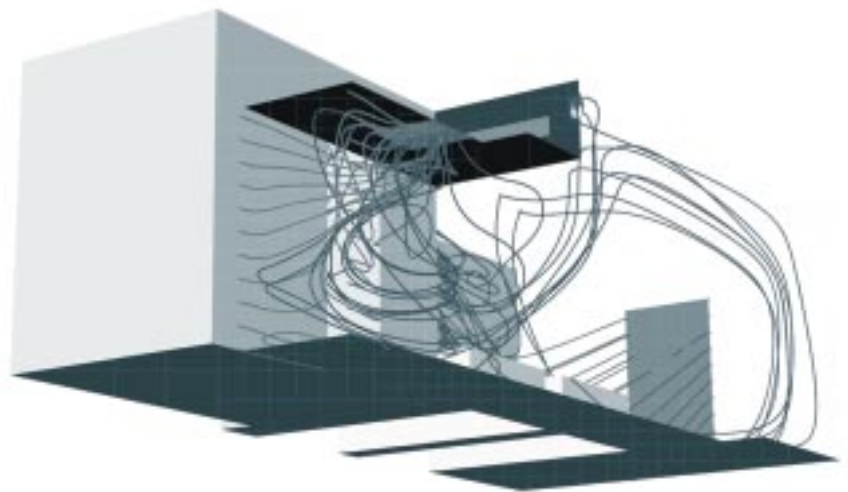
DADANCO (EUROPE) CO LTD
15 Jockeys Fields
London WC1
United Kingdom
Telephone +44 171 610 6693
Facsimile +44 171 736 3525

Computer Modeling Provides Solutions

Patented Starline technology was developed with the aid of CFD (Computational Fluid Dynamics) simulation. DADANCO has invested considerable resources in the latest and most powerful computer modeling software in order to simulate the effect of air movement in relation to its confines. This investment underpins DADANCO's commitment to further research and development with an aim to finding the best solution possible for climatic control.

For example, DADANCO performed CFD simulations on a hotel room in the tropics to solve the inherent humidity problem. It was established exactly how the humid air would infiltrate and move around within the room and what effect this would have on the degree of comfort. With this evidence, a solution was quickly found by introducing the Starline technology.

DADANCO can provide CFD modeling as a service to design engineers in determining the best air conditioning solution for any given situation.



Prestigious award recognises scientific research & business development.

At the recent Australia Post-Australia Day Council Business Awards presentation, on Friday, July 3, DADANCO Pty Ltd was acknowledged for its innovative technology and business entrepreneurship.

Presenting the Australia Post Australia Day Council business award, Bill Mitchell, General Manager Australia Post, said that DADANCO technology was saving old commercial buildings that are "dying" from poor air conditioning, in Australia and around the world.

Reading from the citation, Mr Mitchell said the technology, which had been recognised in the scientific community, has extensive ramifications for building construction and commercial property maintenance industries, and may even influence the design of future commercial buildings.



(Left to right) John Bailey, OAM., JP, Chairman of the Australia Day Council, Bernie Kavanagh, DADANCO Pty Ltd, and Bill Mitchell, General Manager Australia Post, at the recent Australia Post-Australia Day Business Awards luncheon where air conditioning specialist DADANCO Pty Ltd was recognised for its innovation and the commercial application of its patented technology.