

Improving air because we care



BARCOL-AIR

SIG AIR HANDLING

EXPORT COMPANY PROFILE

“AS A MEMBER
OF THE SIG FAMILY,
WE SHARE THE SAME
VALUES AND CORPORATE
RESPONSIBILITIES”

TABLE OF CONTENTS

4	An introduction
6	Export divisions
8	Our R&D centre
10	Sustainable solutions & International guidelines
12	Intelligent VAV systems
13	BIM: Building Information Modelling
14	Spotlight: AFMS
16	Our products
19	SIG Air Handling
20	HC PS
	Reference projects:
22	<u>Office:</u> The Edge - Amsterdam
23	<u>Government:</u> Complejo J.F. Ibarra - Santiago del Estero
24	<u>Hotel:</u> Luxury W-hotel - Dubai
25	<u>Office:</u> Banco Santander Rio Garay - Buenos Aires
26	<u>Office:</u> Menora Astra Tower - Jakarta
27	<u>Museum:</u> Qatar National Museum - Doha
28	<u>Hospital:</u> KHCC - Amman
29	<u>Airport:</u> Midfield Terminal - Abu-Dhabi
30	<u>Renovation:</u> Lloyds Digital Banking - London
31	<u>Mall:</u> Dubai Mall - Dubai
32	<u>Villa:</u> Masdar Eco-Villa - Abu-Dhabi
33	<u>Office:</u> Telenor Margalla - Islamabad
34	<u>HC PS:</u> Le Toison D'or - Brussels
35	<u>HC PS:</u> Lebanon Waterfront City - Dbayeh
36	Distributors & Partners

BARCOL-AIR – COMPANY INTRODUCTION

Barcol-Air specializes in creating an optimal indoor climate with environmental and state of the art products, services and solutions. Our goal is to make every newly build office, healthcare centre, educational building or shopping mall into a space of optimal comfort with a perfect balance between heating, cooling and ventilation with a focus on energy consumption and indoor air quality.

Our products are all manufactured according to the latest NEN, ISO, AHRI, DIN, NFPA and UL standards.

- Product categories: air volume control units (VAV, CAV), induction air volume control units (environmental friendly), ventilation, fire safety, air flow measuring and control stations, chilled beams, FCU's and grilles & diffusers
- Over 80 employees, with a combined experience full of knowledge and technical expertise in HVAC & Controls products, making Barcol-Air one of the strongest players on the market
- Dedicated after sales service! We are dedicated to offer a continuing high value service after a sale is made
- Barcol-Air is a member of the Dutch Green Building Council. DGBC assesses Dutch buildings and projects on its sustainability according to the BREEAM-NL standards
- Barcol-Air as part of SIG Air Handling is a member of the European Ventilation Industry Association (EVIA)
- Worldwide coverage with projects in more than 50 countries with 35 distributors

“Single source,
single responsibility”



PARTICIPANT

www.barcol-airproducts.com



1900

Founded in 1900 as Barber-Colman Company (USA)



1982

Established in 1982 as Barcol-Air B.V. the Netherlands



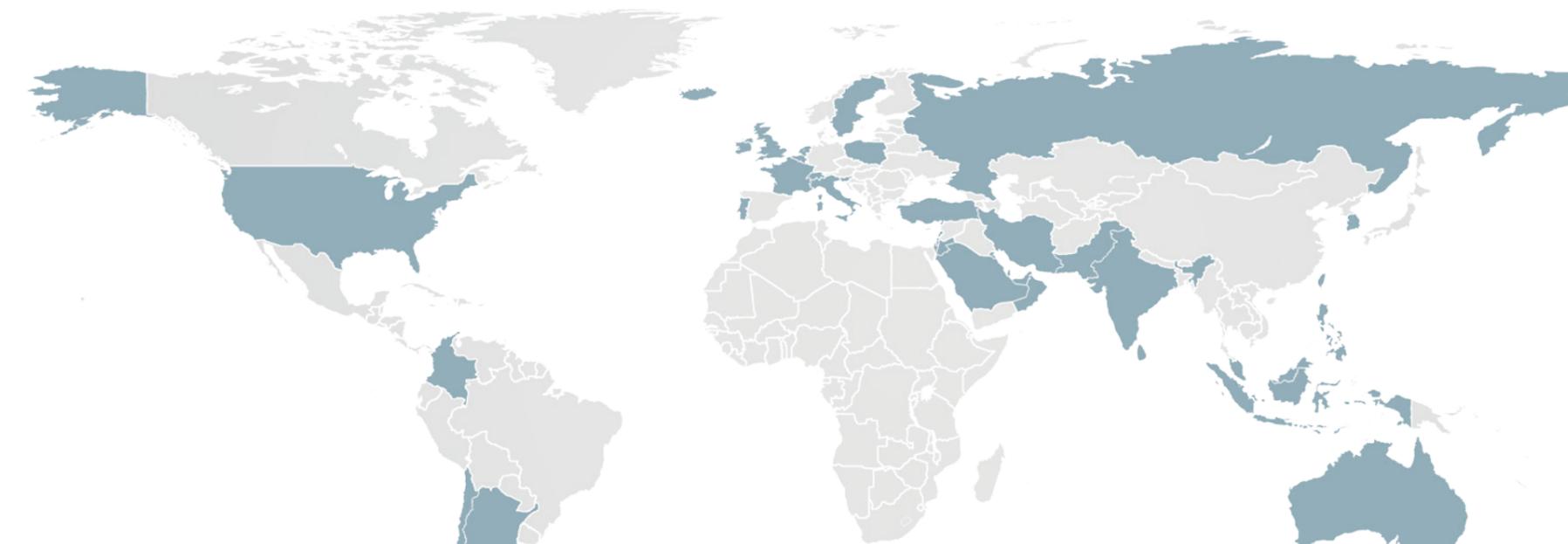
2006

Acquired by HC Groep in 2006



2015

In 2015 Barcol-Air was acquired together with the other entities of the HC Groep, by SIG Air Handling which is a SIG plc company. SIG plc is a leading European supplier of Insulation, Exteriors and Interiors and is listed on the London stock exchange.





Barcol-Air | Air Distribution

- VAV & CAV systems
- Induction VAV system
- Air flow & pressure measuring & control stations
- Chilled beams
- Controls
- Fans
- Air duct components
- Grills & diffusers



HC PS | Car Park Ventilation Systems

- Induction fans
- Axial exhaust fans
- CO/LPG/NOX
- Air dampers
- Smoke screens



“IMPROVING AIR BECAUSE WE CARE”

Indoor air quality has become a major concern for many people in Europe and all around the world.

“As a company and as a member of the SIG family we have an important responsibility towards the environment, the society and future generations”

We must do everything we can to ensure a healthy and safe indoor climate and therefore constantly improve the quality and efficiency of our products. Therefore SIG Air Handling is a member of the European Ventilation Industry Association.

This is why we want to contribute to a better indoor environment and create a better quality of life for everyone.

This is why we care.



BARCOL-AIR RESEARCH AND DEVELOPMENT CENTRE

Climate Room

The Barcol-Air Climate Room meets the most recent NEN-ISO standards 7726 and 7730. It can perform full-scale tests with the room built to actual specifications. The laboratory can simulate any type of outdoor condition with its unique double climate facades from floor to ceiling. The mock-ups can also be added with other project specific specifications like: ceiling, floor, furniture, lightning and convectors.

The data acquisition system has an unique calculation module to present real time data, not only air temperature and velocity, but also the PMV (Predicted Mean Vote), PPD (Percentage People Dissatisfied) and DR (Draft Rate).



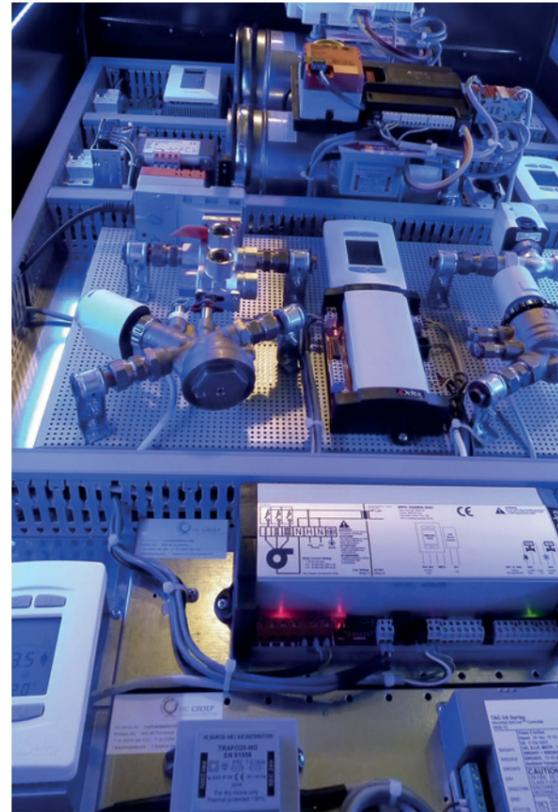
Acoustic reverberation room

Our acoustic reverberation room is specially designed to measure the discharged, radiated, inlet and/or outlet sound levels of different products. The measured sound pressure levels will be corrected with the reverberation time of the room and the background noise to present the sound power levels in tabular and graphical format.



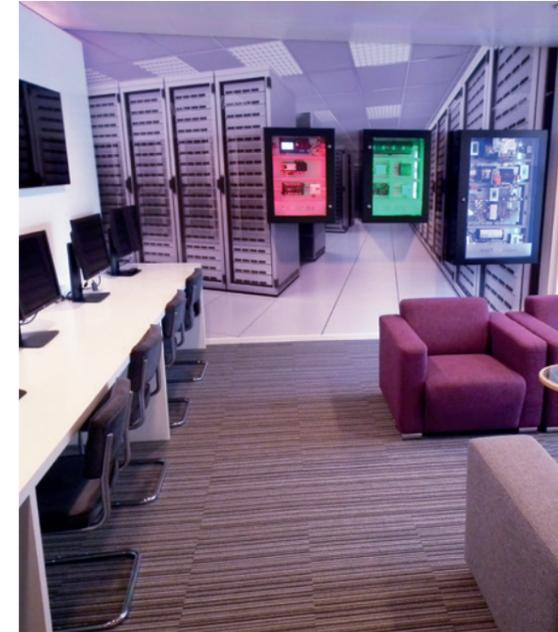
HVAC & Controls test room

In the HVAC test room different type of tests on our air distribution products can be carried out. This can be controls and air volume accuracy tests, pressure drop tests, induction ratio tests, etc.



Solution Center

The Solution Center is developed to demonstrate our knowledge on system integration by showing a wide range of building controllers, field devices and room sensors. The client can train himself with the different devices, but it is also possible to login (via internet) into their existing buildings and to provide dedicated controls training sessions to, for example: facilities management personnel.



“WE DEVELOP ADDED VALUE PRODUCTS & SYSTEMS”

Most products as supplied by Barcol-Air are maintenance free and energy efficient, which contributes to green & comfortable building certifications such as:

BREEAM

BREEAM is a leading sustainability assessment method for master planning projects, infrastructure and buildings. It addresses a number of lifecycle stages such as New Construction, Refurbishment and In-Use. Globally there are more than 551,000 BREEAM certified developments, and almost 2,252,800 buildings registered for assessment since it was first launched in 1990. The BREEAM method is mostly applied at the continent of Europe.



| WWW.BREEAM.COM

LEED

LEED, or Leadership in Energy and Environmental Design, is just as BREEAM a leading green building certification assessor. They rate newly build buildings on the following points: Sustainable Sites, Water Efficiency, Energy & Atmosphere, Material & Resources, Indoor Environmental Quality, etc. The LEED method is mostly applied at North- and Latin-America and the Middle East.



| WWW.USGBC.ORG/LEED

WELL

The WELL Building Standard™ is an evidence based system for measuring, certifying and monitoring the performance of building features that impact health and well-being. Different from LEED and BREEAM, WELL focuses more on human health and well-being inside the working space.



| WWW.WELLCERTIFIED.COM

Barcol-Air complies to and follows the guidelines of the below mentioned standards:

- ISO 3741 and ISO 5135 standards for sound data test
- ISO 7730 and DIN 1946 (1994) standards for thermal comfort
- NEN-EN 1751 for casing and damper leakage to
- ISO 7726 and ISO 7730 standards for climate laboratory
- AHRI 880 certification for VAV terminals
- NFPA 90A and 90B surface burning characteristics for insulation material
- BS 476 part 6 fire propagation for insulation material
- BS 476 part 7 surface spread of flame for insulation material
- UL listing for electric heater coil elements



Ref.: Helios Massy, Paris, France



Ref.: SKF, Tortuguitas, Argentina



Ref.: Mapletree Business City II, Singapore

Barcol-Air: green building projects

BARCOL-AIR INTELLIGENT VAV SYSTEMS

Nowadays in a world where energy efficiency, renewable energy and sustainable products and workspaces are more important than ever, Barcol-Air comes with cutting edge technologies. With a strong partnership between Barcol-Air and our SIG Air Handling associates, we created a new level of sustainability through HVAC excellence, which resulted in our contribution to the smartest building in the world, The Edge, Amsterdam, awarded with the highest sustainability score by BREEAM (see also page 22).

Taking a closer look at an intelligent VAV system and with which products we implement this in the latest and state of art buildings, we use the following items:

- AFMS (Air Flow and Measuring Stations)
- Induction VAV's and Chilled beams (energy efficient)
- Intelligent and communicating VAV-controllers
- CO₂ sensors, Occupancy sensors and other smart sensors
- BMS / Home automation integrated solutions

“PLUG & PLAY”



These items complement each other to ensure an energy efficient, fully functional and optimal comfort HVAC system. All controls are factory fitted, wired, calibrated and tested. Plug & Play installation is a given fact and an important reason for customers to choose for Barcol-Air products and systems.

BIM BUILDING INFORMATION MODELLING

What is BIM?

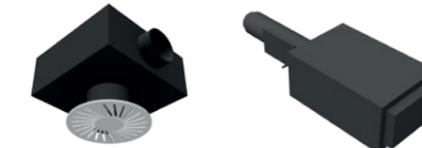
BIM stands for 'Building Information Modelling'. It represents the process of collecting all information of a construction process in one summarized model for presentation in a virtual building model. This model includes all relevant information, such as drawings, calculations, specifications, materials lists and planning. To make this process work properly, all concerned parties need to work according to one code/standard. Barcol-Air follows the European MEPcontent Standard (EMCS), developed by Stabiplan which makes sure that all processed models of different parties are build according to uniform parameters, codes, geometry and connections around the whole of Europe. The EMCS standard matches the international IFC standard.

Barcol-Air and BIM

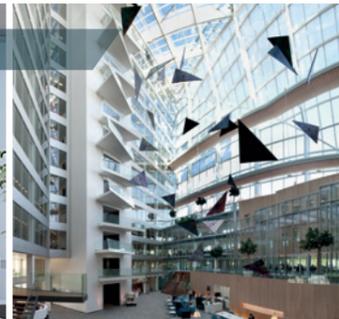
As a producer of air distribution products, Barcol-Air is involved in the BIM process. Until now we have made 90% of our products BIM-ready which are all downloadable at: www.barcol-airproducts.com and www.mepcontent.eu. Our BIM partner is Stabiplan, a company with over 20 years of experience and a true BIM specialist with a strategy focusing on the future. Their Stabicad software enables an engineer to design, visualise, control and optimise technical installations with a sophisticated and future proof design. This contributes to an effective development, management and installation process, which results in cost savings and quality.



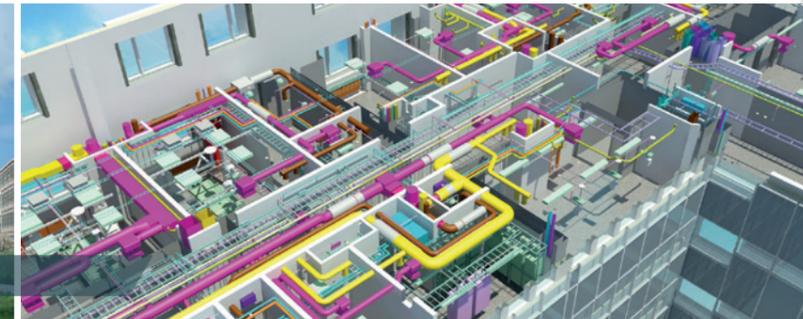
MEPcontent
The BIM library for MEP engineers



The Edge: computer with a roof



Ref.: HagaZiekenhuis Hospital, The Hague, the Netherlands



Complete BIM design



Ref.: PI 2 Penitentiary, Zaanstad, the Netherlands

SPOTLIGHT: AIR FLOW MEASURING STATION

The basic functions of air flow control such as: constant air volume, static pressure, supply/return balancing etc. are very simple and straightforward in theory. The practical application of these functions, however, is very difficult due to the small magnitudes of the measuring signals (velocity pressure in most cases).

Measurement

Most air flow control applications involve 4 stages of control process:

- Sensing the air flow based on a pressure differential signal (velocity pressure produced by an in-duct air flow sensor).
- Transducing and amplifying that signal into a format used by the controller (analogue, pneumatic, DDC, etc.).
- Converting the signal into a proper control relationship by use of a square root extractor to make the control signal linear to air volume. Analysing that control signal and if necessary adjust (reset) the air flow.

Accuracy

The overall accuracy of the control system (loop) is totally dependent on the intrinsic accuracy of each of these components and a small error in the first step will be amplified by the second and so on. Because a controller can control no better than the signal it receives, Barcol-Air developed the Flo-Cross® air flow sensor, which provides a highly

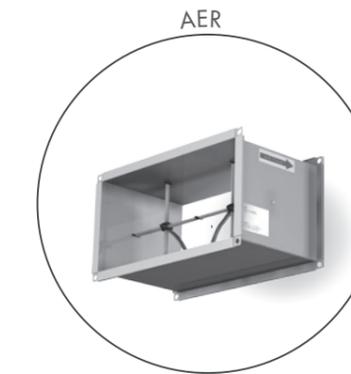
accurate test signal, averaged over at least 24 test points and amplified by at least 2.5 times the velocity pressure. This sensor has a proven accuracy of 2.5% even with irregular duct approach. This accurate signal can be read manually through a pressure-gauge or can be an input to any Building Management System to be used to control such functions as: energy management, balancing supply and return air volumes, pressure control, monitoring and controlling minimum fresh air volumes, tenancy billing by floor or by zone, to provide a reliable accurate reference point for air flow commissioning in VAV systems, etc.

The Barcol-Air measuring and control station system consists of 3 different standard devices:

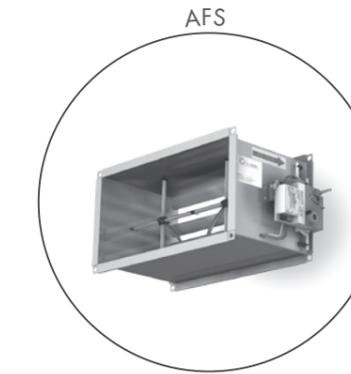
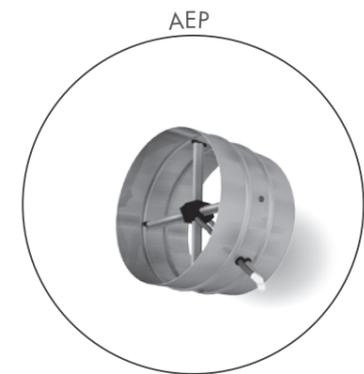
- Type AE..... for air flow measuring.
- Type AF..... for air flow measuring and air flow control.
- Type AH..... for air flow measuring and system pressure control.

Energy Savings with "Air-Trac" system

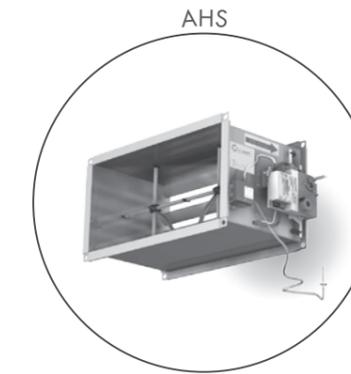
Constant volume systems can be optimised by one time commissioning of manual operated dampers. However, today from an energy point of view, constant volume systems are no longer used in air conditioned buildings. Variable Air Volume or Induction VAV systems in combination with modern Building Management Systems comply with today's energy saving requirements. In order to maximise energy savings under all load conditions it is necessary to monitor and control air flow and pressure during operation. Unfortunately nobody can afford having commissioning engineers working in the building 24 hours a day throughout the buildings life.



AIR VOLUME MEASURING STATION



AIR VOLUME MEASURING AND CONTROL STATION

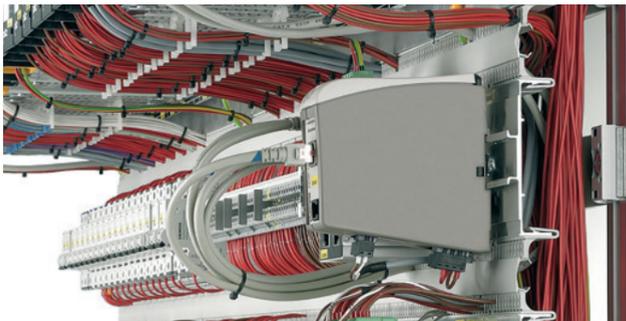


AIR VOLUME MEASURING AND PRESSURE CONTROL STATION



Flo-Cross® air flow sensor

- Multiple test points (at least 2 x 12 points) equally distributed in the duct area
- Only 1 diagonal straight duct required
- Better than 2.5% accuracy
- Centre averaged signal
- Linear amplified



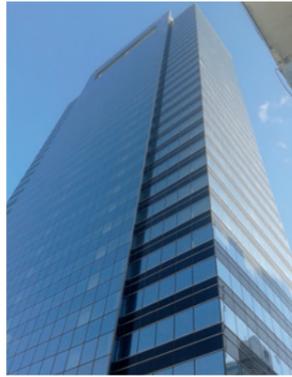
BARCOL-AIR PRODUCTS



Ref.: Landmark group project, Dubai, UAE

Features

- Pressure independent
- For individual room temperature control
- Single or double wall construction
- Low leakage damper
- High accurate air flow sensor
- Quiet in operation
- Optional: sound attenuator and / or reheat coil (hot water or electric)



Ref.: Belgrano, Buenos Aires, Argentina, LEED Gold

Features

- Pressure independent
- For comfortable air distribution in systems with high load variation
- Optional: reheat coil (hot water or electric)
- High accurate air flow sensor
- Integrated sound attenuator (very quiet)
- Low leakage damper
- Highly energy efficient



Ref.: Financial Harbour, Manama, Bahrain

Features

- Pressure independent
- For large air volumes
- Single or double wall construction
- Low leakage damper (optional)
- High accurate air flow sensor
- Quiet in operation
- Optional: sound attenuator and / or reheat coil (hot water or electric)

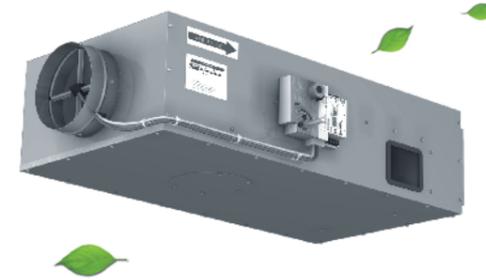
CIRCULAR

Type NA/NB, Circular single duct VAV/CAV terminal	100 - 400 mm



INDUCTION

Type NV, Induction VAV terminal	100 - 400 mm



RECTANGULAR

Type NK/NL, Rectangular single duct VAV/CAV terminal	200 x 100 mm to 2000 x 1000 mm



VAV / CAV

BARCOL-AIR PRODUCTS



Ref.: Glaxo Smith Kline, London, United Kingdom

Features

- Pressure independent
- For low noise requirements in high pressure or high velocity systems
- Low leakage damper
- High accurate air flow sensor
- Integrated sound attenuator (very quiet)
- Optional: reheat coil (hot water or electric)



Ref.: Tempo Scan Tower, Jakarta, Indonesia

Features

- Pressure independent
- For individual room temperature control
- Low leakage damper
- High accurate air flow sensor
- Constant air flow to the room
- Quiet in operation
- Optional: sound attenuator and / or reheat coil (hot water or electric)



Ref.: Opera House, Dubai, UAE

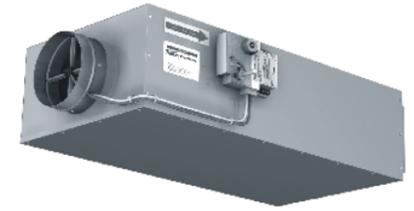
Features

- Pressure independent
- Single wall or double wall
- Control accuracy $\pm 10\%$
- Factory set, saves commissioning time
- Provision for on-site adjustment across the full volume scale
- Optional: sound attenuator and / or reheat coil (hot water or electric)

VAV / CAV

ACOUSTIC

Type NS, VAV/CAV terminal with integrated sound attenuator	100 - 400 mm



MIXING

Type NZ, dual duct VAV / CAV terminal	100 - 400 mm



MECHANICAL CAV

Type NR/NT, circular CAV terminal	80 - 400 mm
Type KVR-R, CAV for in-duct installation	80 - 250 mm





Ref.: Oracle 5 Building Campus, London, United Kingdom

Features

- High capacity
- Low maintenance
- Low noise
- Compact in size
- Low built-in heights
- Flexible design
- Selection software: www.beamadvisor.com

Chilled beams operate using water-based heat exchangers and have a high cooling and heating capacity and are suitable to ventilate. The system allows a flexible solution to indoor climate control with minimal maintenance. An active chilled beam above a passive one has the added benefit of providing fresh air as well as heating or cooling.

AIR-FIT®

Type Air-Fit-300 or 600, active chilled beam	Size 600, 1200, 1500, 1800, 2400 or 3000



Cross-cut Air-fit, copper tubing



Different nozzle settings

CHILLED BEAM

SIG AIR HANDLING PRODUCTS

About SIG Air Handling

SIG Air Handling is one of the largest stock holding HVAC products suppliers in Europe. There are multiple warehouses in Belgium, the Netherlands, Bulgaria, France, Hungary, Poland, Romania and Turkey from where local installers are supplied with almost every type of HVAC products and materials thinkable. (±10.000 products of which 80% available in stock). In Belgium, SIG Air Handling is market leader in most of the product categories.

E-SHOP

SIG Air Handling offers as an extra service a fully functional webshop, available in 8 different languages, which contains 100% of the product line, plus technical documentation. Nowadays about 70% of all sales is made through the E-shop. It also contains various selection tools like a duct calculator. Customers can easily order their supplies and have a direct overview of stock and pricing.



Ref.: Akzo Nobel, Amsterdam, the Netherlands, BREEM 4 star certification

Features

- Low energy usage
- Low environmental impact
- Suitable for renovation projects
- Minimum visibility
- Maintenance free
- Freedom of ceiling layout

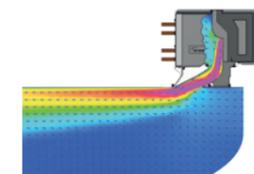
The AIR-TWIST® was designed for mixed systems in which the air conditioning system supplies the necessary ventilation air, while the cooling and heating energy is conveyed mainly by means of water. The low installation height makes the unit highly suitable for projects with limited space, like renovation projects.

AIR-TWIST®

Model 1, 2 and 3	For sizes see our website: barcol-airproducts.com



Air-Twist, embedded in office ceiling



CFD simulation Air-Twist



External louvres



Dampers



Ducts



Fixings



Insulation



Valves



Domestic fans



Roof fans



Special Tape



Duct inspection



About HC PS

HC PS is an active player on the market of Car Park Ventilation and Tunnel Ventilation. Since 1995 they have designed and installed over 2.500 car parks worldwide. Thanks to their extensive international experience they gained a lot of knowledge on the wide variety of local regulations and requirements. This makes us a professional player in this very specific and demanding market.

Design support

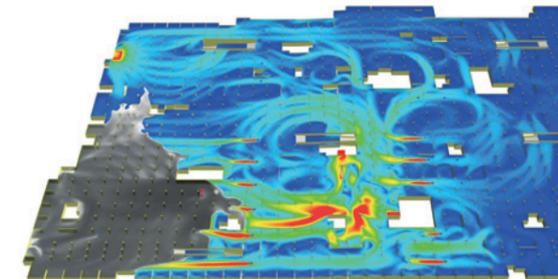
HC PS provides as a special service, a conceptual design with e.g. the needed spaces and locations that they require in a building design in order to have a suitable and efficient ventilation system. After the architectural design phase and close cooperation with consultants and architects, they will engineer the systems in order to deliver an optimal performing system that also complies with local regulations. Based on their engineering design they provide tender documents and can make installation drawings as detailed as is required. Additionally they are able to make a complete CFD simulation in order to convince local authorities about the performance of the designed system.

Cold & hot smoke tests

Besides CFD simulations as performance verification in the design phase, real life smoke tests, both cold as well as hot, are performed during the testing and commissioning phase. A cold smoke test they do primarily to check the ventilation efficiency, blind spots and dilution rate. A second test is to indicate local air movement. After a cold smoke test a more demanding test with hot smoke can be performed. This test has been specially developed for testing fire ventilation systems since the thermo and fire dynamic effects significantly influence the air flow in the car park.

System supplier

HC PS is involved in every step of the project. From pre-design until the opening of a new car park and future service and maintenance, they completely unburden the client. They take full care of the ventilation needs with supply and exhaust fans, induction fans, MCC's, frequency invertors, air dampers, grilles, CO detection systems and sound attenuators. Thanks to extensive international experience, they are able to design a smart ventilation system in accordance with applicable codes and legislation, installing their efficient induction fans and other related products in to one integrated system. This results in exceptional cost savings, both in the investment of the system as well as future service, maintenance cost and energy consumption.



CFD of a smoke control ventilation system and analysis of the system performance



Ref.: Escom towers, Luanda, Angola

IDV-HC-50v2 / IDV-HC-100v2

This induction fan has been developed to provide many technical advantages, using a patented outlet venturi and ultra-flat centrifugal impeller, resulting in a very low installation height of 257 mm or 325 mm. The HC PS induction fan can induce up to 19 times the air actually passing through the fan.

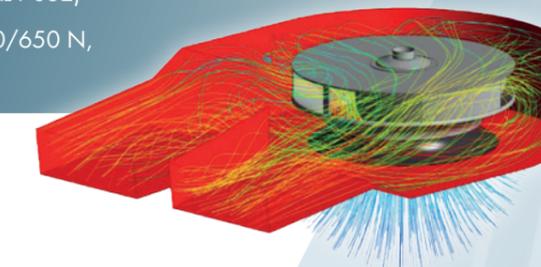
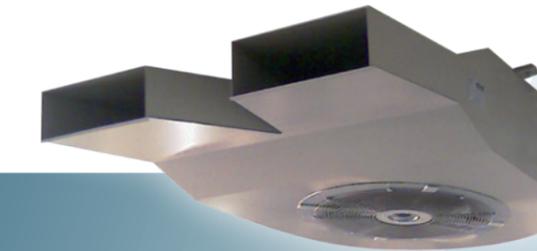
The minimised casing height in combination with the special designed outlet nozzles enables the designer to position the fans at the ideal location, since they do not interfere with traffic circulation.

This flexibility allows for the following advantages:

- A reduction in the number of thrust fans required (by up to 65%) due to improved system performance
- Lower energy consumption
- Fewer cables, including ancillaries
- Lower installation and maintenance costs

Other Features:

- Nominal maximum thrust 50 N / 100 N
- Specially designed and patented nozzle for car park applications
- Projection up to 1 per 800 m² per fan
- 300°C - 120 min. (class F300) in accordance with EN 12101-3
- Fully welded and double powder coated (in RAL 7032)
- Upon request available: other RAL colours, 300/650 N, duct neck and Aluzinc casing



CFD model with flow pattern of an induction fan

INDUCONTROLE

Key features:

- Maximum thrust 20 Newton
- Frequency controlled
- Power: 230VAC
- Weight 12kg
- Including Isolator
- Perfect for small car parks and daily ventilation

“QUALITY
GUARANTEES
A MAXIMUM
LIFETIME”

REFERENCE PROJECTS

OFFICE 

Complejo Juan Felipe Ibarra, Santiago del Estero, Argentina

GOVERNMENT 

The Edge, Amsterdam, the Netherlands

This flexible and future proof office is world's greenest and smartest office building. Individual control is possible with a specially designed smartphone app. It knows the schedule of every single employee and guides them for example to a parking spot because it knows when they arrive. The app will then guide them to a work space and knows their preferences for light and temperature. British rating agency BREEAM gave the Edge the highest sustainable score ever awarded: 98,4%.

Barcol-Air together with its partners of SIG Air Handling, supplied and installed all HVAC installations and BMS system.

- 1.000 VAV terminals with DDC controllers and 2.000 pieces of grilles and diffusers
- 30.000 m² Chilled Ceilings (HC KP)
- Ventilation system for 9.750 m² of Car park (HC PS)
- Smart Building Management System (HC RT)

MEP Contractor: Homij / Bosman

Consultant: Deerns

Green Building Rating: BREEAM - Outstanding ★★★★★



"THE SMARTEST BUILDING IN THE WORLD"

Project Description

These two newly build governmental buildings are a prominent city landmark in the city of Santiago del Estero in Argentina and are the new, state of the art homes, for the 1.700 employees of the ministry of Education and Economics.

The 24 and 18 storey towers that are linked by two air bridges are packed with energy efficient and sustainable technologies and thus awarded as the first governmental building in Argentina with a LEED Silver certification. The towers are outfitted with: an intelligent BMS systems to regulate the air flow and lightening systems, solar shading devices, a double skin façade to decrease cooling load in the summer and to benefit in winter during heating requirement, solar collectors for the heating of water, water saving equipment and the use of Induction VAV systems to create an optimal comfort indoor climate with a perfect balance between heating, cooling, humidity and ventilation.

Barcol-Air supplied:

- 400 pcs of Induction VAV terminals with electric reheat coils
- All Induction VAV terminals are fully equipped with factory fitted, wired and calibrated Schneider Electric MicroneTM LonMark[®] DDC VAV controllers

Distributor: Cermac Air Technik S.R.L., Buenos Aires, Argentina

MEP Contractor: PASSAIR S.R.L., B.A., Argentina

Consultant: GF/Estudio Grinberg Ingenieros Consultores, B.A., Argentina

Green Building Rating: LEED Silver certification



For more information visit: www.ovgrealestate.nl

W-Hotel and residences Palm Jumeirah, Dubai, UAE

HOTEL 

This EMAAR project consists of a luxury resort, situated on the Crescent of the Palm Jumeirah and is a world class hotel resort and residential complex with a spa, pool areas, water features and other amenities comprising of approximately 100.000 m² of accommodation including 300 hotel rooms and 45 super luxury duplex, triplex apartments and penthouses.

Barcol-Air VAV's were selected because of the very low sound levels that were required for this prestigious project.

Barcol-Air supplied:

- 100 pcs of double wall VAV and CAV terminals
- All terminals are fully equipped with factory fitted, wired and calibrated Schneider Electric MicroneTM BACNetTM DDC VAV controllers

Distributor: Progen General Trading LLC, Dubai, UAE

MEP Contractor: Drake & Scull, Dubai, UAE

Consultant: Hyder, Dubai, UAE

AIR IS *COMFORT*
AIR IS *ENERGY*
AIR IS *LIFE*

Banco Santander Rio Garay, Buenos Aires, Argentina

OFFICE 

This new project which is currently under construction proposes a three block building with elevated patios and a stunning view on 'Parque Lezama' and 'Río de la Plata'. The three blocks, containing a branch office, front office and back office, will be interconnected through glass hallways. The complex will consist of 10 floors and 4 subterranean levels. The saving of energy is priority number one and that is exactly why the consultant of this project choose to install energy efficient Barcol-Air Induction VAV, instead of the obsolete Fan powered boxes.

Extra attention was paid to the selection of the 1, 2 and 4 row heating coils, to minimise the use of energy during heating applications.

Barcol-Air supplied:

- 600 pcs of Induction VAV's with hot water reheat coil
- All terminals are fully equipped with factory fitted, wired and calibrated Schneider Electric MicroneTM BACNetTM DDC VAV controllers

Distributor: Cermac Air Technik S.R.L., B.A., Argentina

MEP Contractor: Brignone S.A. y Termair S.A., B.A., Argentina

Consultant: GF/Estudio Grinberg-Feliz, B.A., Argentina

Green Building Rating: LEED Gold certification anticipated



Menora Astra Tower, Jakarta, Indonesia

OFFICE

Qatar National Museum, Doha, Qatar

MUSEUM

Project Description

New high buildings will be popping up in Jakarta and surrounding areas. After PT Pertamina started with the construction of its 99 storeys Pertamina Energy Tower, Astra International also started the construction of their skyscraper of 50 storeys and 6 basement levels, which will become the company's HQ. The building is called the Tower of the Astra and is located on Jalan Sudirman, Jakarta. Astra tower will be an International "grade A" office with a Green Building platinum rating, the highest rating achievable and will be one of the most iconic skyscrapers in Jakarta with a total height of 270 meters. The construction is planned to be completed in 2017.

The Barcol-Air Induction VAV terminals were especially tested and selected to get the highest induction ratio's, at minimum duct static pressure levels, resulting in minimum kWh energy required per l/s air supplied.

Barcol-Air supplied:

- 1.320 pcs of Induction VAV terminals and over 150 pcs of rectangular double wall pressure independent VAV terminals
- All VAV terminals are fully equipped with factory fitted, wired and calibrated Schneider Electric Micronef™ BACNet™ DDC VAV controllers

Distributor: PT. Barcol Nusantara, Jakarta, Indonesia
 MEP Contractor: Shimizu Corp., Tokyo, Japan
 Consultant: PT. Meinhardt, Jakarta, Indonesia



Green Building Rating: LEED Platinum certification anticipated

Project Description

Prominently located on a 139.000 m² site at the end of Doha's Corniche, the all New Qatar National Museum will be the first monument that travellers will see arriving from the airport. The interlocking disc design by Jean Nouvel is inspired by the desert rose that appears to grow out of the ground. Each disc will be made of a steel truss structure clad in glass-reinforced concrete and the voids between the discs will be glazed. Beyond galleries, it provides a 220-seat auditorium, retail outlets, restaurants, research centre and laboratories. The museum is set to open in 2017.

The terminals are installed without the use of a false ceiling, so to meet the project radiated NC levels, Barcol-Air equipped the VAV terminal with a special discharge plenum using a casing thickness of 1,6 mm, with internal acoustic Basotect-G lining, made by BASF Switzerland.

Barcol-Air supplied:

- 80 pcs of VAV terminals including discharge plenum, completed with slip-in thyristor controlled electric reheat coils
- All terminals are fully equipped with factory fitted, wired and calibrated Schneider Electric Micronef™ BACNet™ DDC VAV controllers

Distributor: Shahjan Trading Est., Doha, Qatar
 MEP Contractor: BK Gulf, Doha, Qatar
 Consultant: ARUP, London, UK



The King Hussein Cancer Centre, Amman, Jordan

Project Description

This newly designed expansion of the already existing hospital in the centre of Jordan capital Amman, will double its capacity and grow from 24.000 m² to 108.700 m². The KHCC is the leading cancer centre in the Middle East region providing adult and paediatric patients with state of the art comprehensive treatment. After the expansion the number of beds will grow to 352, its operating rooms to 8 and its intensive care units to 42.

With this project Barcol-Air faced a big challenge to get the more than 500 terminals supplied to the building site, within a very short time frame.

Barcol-Air supplied:

- 515 pcs of VAV and CAV terminals including
- All terminals are fully equipped with Honeywell DDC VAV controllers

Distributor: ACE Supplies & Trading Co., Amman, Jordan
 MEP Contractor: Consolidated Contractors Company / Haddadin JV, Amman Jordan
 Consultant: Sigma-consulting Engineers, Amman, Jordan

HOSPITAL



Midfield Terminal, Abu-Dhabi, UAE

Project Description

The Midfield Terminal Building will be the largest in the Emirate of Abu-Dhabi and will be visible from more than 1,5 km away. With a capacity of 30 million passengers per year, it will handle up to 8.500 passengers per hour. It has 65 aircraft gates and 700.000 m² of internal space with arches spanning 180 m across.

Special double skin rectangular VAV terminals were designed by Barcol-Air for high air volumes and dimensions up to 2400 x 1000 mm with a special formaldehyde-free insulation material as per Estidama requirements.

Barcol-Air supplied:

- 90 pcs of rectangular large air volume pressure independent VAV terminals
- All terminals are fully equipped with factory fitted, wired and calibrated Siemens DDC VAV controllers

Distributor: Dutco Tennant LLC, Dubai, UAE
 MEP Contractor: PCE JV, Abu-Dhabi, UAE
 Consultant: Abu-Dhabi Airports Company PJ SC

Green Building Rating: Estidama 3 pearl rating



For more information visit: www.adac.ae/english

Lloyds Digital Banking, 48 Chiswell street, London, UK

Barcol-Air was appointed to deliver the VAV terminals of the 120.000 sq.ft. Chiswell Street in London, creating a flexible, future-proof home for Lloyds Digital Banking.

As a key building in the London 'Master Plan', maximum occupancy was critical throughout the 42 week construction programme. As a result, the refurbishment sequence was designed to ensure the whole building remained operational 24/7, with no disruption to Lloyds or adjacent residential properties. Works included the fit-out of six floors.

Because this office is based in the centre of London, logistics were a real challenge with just in time deliveries, arranged per floor and transported by small trucks with taillift.

Barcol-Air supplied:

- 250 pcs of Induction VAV terminals complete with hot water reheat coil
- All Induction VAV terminals are fully equipped with factory fitted, wired and calibrated Schneider Electric Micronet™ BACNet™ DDC VAV controllers

Distributor: Barcol-Air UK, Bath, United Kingdom
 MEP Contractor: Michael Lonsdale Group, Berkshire, UK
 Consultant: ETEC Associates, London, UK

RENOVATION



“DELIVERING COMPLETE SYSTEM SOLUTIONS TO CUSTOMERS”



Dubai Mall, Fashion Avenue Expansion, Dubai, UAE

Next to the already existing 12.1 million sq.ft. Dubai Mall is currently being worked on an expansion of this majestic super mall. Barcol-Air was asked to develop a special class of Air flow Measuring Stations (AFMS), able to withstand the immense pressure of 30 m/s of air flowing through the canals.

LEED certification requires that the air flow is measured and monitored by the BMS. The AFMS, which are installed in the main ducts of the building, measure the air flow of the supply and the extraction ducts creating a combined loop to give maximum energy savings under all load conditions. This "Air Trac®" system developed by Barcol-Air is also applied at Dubai Mall.

Barcol-Air supplied:

- 250 pcs of Air flow Measuring Stations with air straightener, including pressure transducers with digital display

Distributor: Dutco Tennant LLC, Dubai, UAE
 MEP Contractor: BK Gulf LLC, Dubai, UAE
 Consultant: WSP Brinckerhoff, Dubai, UAE



Masdar City Concept Eco-Villa, Abu-Dhabi, UAE

VILLA 

Masdar City is a fast project initiated by Masdar Development Company. It consists of a 4 km² area which will form an Urban Innovation Ecosystem, pushing the boundaries of sustainable design. It will be home to one of the world's largest clusters of high performance buildings. It's actually a laboratory to monitor and study how cities use, conserve and share resources. It's aiming to have all of its buildings Estidama 3 Pearl rated.

The knowledge that Masdar City collected since its start in 2008, is now taken to the next level with the construction of its first concept sustainable villa that generates enough solar energy to power the home year-round. The Eco-Villa will meet a growing demand for family homes in the rapid growing city of Abu-Dhabi. Its high-performance solar panels will generate approximately 40.000 kWh per year, enough to fulfill the demand of about 39.000 kWh each year. The villas are estimated to use 35% less water than standard villas, thanks to low flow toilets, water saving showers and other innovative water conservation measures.

The Eco-Villa consultant decided to use high quality, highly accurate and silent Barcol-Air VAV terminals to provide an optimal indoor climate for the occupants.

Barcol-Air aims to supply:

- NBOBOOB circular double wall VAV terminals, all fully equipped with factory fitted, wired and calibrated Belimo Compact VAV controllers

Distributor: Independent Technical Solutions L.L.C., Dubai, UAE

Green Building Rating: Estidama 3 pearl rating anticipated



Project Description

Telenor Margalla Building, Islamabad, Pakistan

OFFICE 

Telenor Group is a Norwegian multinational telecommunications company. In Pakistan they are owner of the fastest growing network for cellular phones and are also holders of the largest GPRS and EDGE coverage.

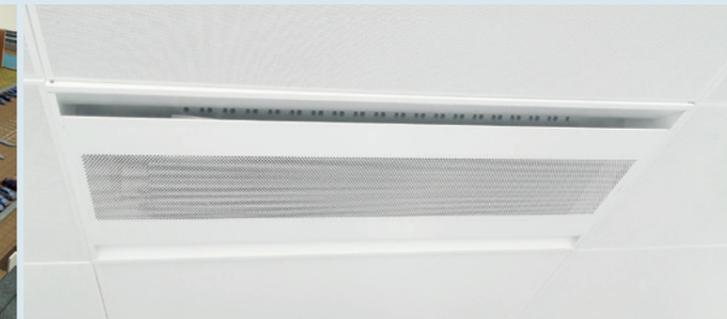
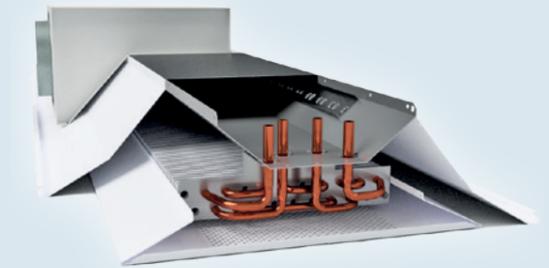
They are currently building a mighty 70 million dollar state of the art HQ in the city of Islamabad. It will house over 1.100 employees who can look forward to Silicon Valley-like amenities. The building will be earthquake resistant and outfitted with solar panels and water saving equipment. The design and construction is very sophisticated, the façade is fully airtight, which has not been achieved in Pakistan before. This low leakage construction is needed to prevent that any humid, outside air can enter the building. The building is divided in zones, which can be individually pressurized by Barcol-Air VAV terminals, installed in the supply and return air-ducts.

Barcol-Air was chosen to outfit the open spaces and offices of the complete building with our energy efficient chilled beams, which were specially tested according to EUROVENT testing procedures at WSP laboratorium, Stuttgart, Germany.

Barcol-Air supplied:

- 480 pcs of Air-Fit® chilled beams including system powered CAV units
- 200 pcs of rectangular VAV terminals

Distributor: I&MS Engineering Private limited, Karachi, Pakistan
 MEP Contractor: Seasonmaster Engineering Pvt. Ltd., Karachi, Pakistan
 Consultant: S. Mehboob & Co., Karachi, Pakistan
 Main Contractor: Paragon Construction Limited, Karachi, Pakistan



Le Toison d'Or, Brussels, Belgium

The southern part of central Brussels is a district with an international atmosphere. You will find top flagship stores alongside world class museums and large parks. Le Toison d'Or is the most coveted promenade in the European Capital and it will give the urban upper city area an extra boost.

With its innovative design, Le Toison d'Or cleverly mixes residential units with retail and also offers a spacious courtyard, two nurseries and an underground parking (public and private).

HC PS has been involved since the pre-till final design phase of the project. Performance of the system in accordance with applicable legislation and other requirements from e.g. fire brigade.

Surface: 12.000 m², divided over 3 floors

Besides engineering, installation, project management etc., the main components delivered by HC PS:

- CFD calculation
- 22 pcs of induction fans
- 5 pcs of axial flow fans
- 22 pcs smoke screens
- 23 pcs of air dampers
- MCC panel

CAR PARK



Lebanon Waterfront City, Dbayeh, Lebanon

The Dubai retailer and developer Majid Al Futtaim is jointly developing the Waterfront City Business Park in Dbayeh, with the Lebanese contractor Société Joseph G Khoury et Fils Holding. When complete, the project will have 2.000 residential units, two hotels, 60.000 m² of office space and 12.000 m² of retail. It will also have Majid Al Futtaim's trademark City Centre shopping mall.

So far, HC PS has supplied the axial flow fans and induction fans for the various car parks in the first developments of this project.

Surface: ± 68.000 m²

HC-PS supplied:

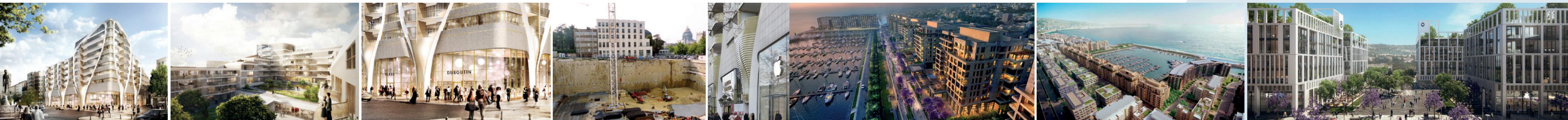
- 155 pcs of Induction fans (in Aluzinc)
- 100 pcs of Axial flow fans

Exclusive Distributor: Maalouf Trading and Contracting SAL, Beirut, Lebanon

MEP Contractors: Climtech/ATS (M-Buildings)
Al Bonian Int. (B-Buildings)
Climtech (SP5, SP6)



HC PS | CAR PARK VENTILATION SYSTEMS



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ADNOC HQ, Abu-Dhabi, UAE (LEED Gold anticipated)

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Menara Asira tower, Jakarta, Indonesia



Contact details

BARCOL-AIR

Cantekoogweg 10-12

1442 LG Purmerend, the Netherlands

T +31 (0)299 689 300

E barcol-air@sigairhandling.nl

I www.barcol-airproducts.com

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