

THERMAL, ACOUSTIC AND FIRE PROTECTION

Hospitality Facilities

Enhancing guest experience while improving efficiency is the key challenge in the hospitality industry. Armacell's best-in-class equipment insulation solutions save energy, help to cut operating costs and contribute towards a safer and more comfortable environment in hotels. Our thermal, acoustic and fire protection solutions are used all over the world to ensure reliable operation. **Build sustainability to protect your bottom line.**

www.armacell.com



 **armacell**[®]
MAKING A DIFFERENCE AROUND THE WORLD

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SOLUTIONS ENABLING ENERGY SAVINGS.

We are the inventors of flexible foams for equipment insulation and a leading provider of engineered foams. Our lightweight thermal, acoustic and mechanical protection solutions create sustainable value for our customers. Day in day out, our products significantly contribute to global energy efficiency and make a difference around the world. Innovation and entrepreneurship are an integral part of our DNA. We drive industry-leading solutions and aspire to launch new technologies using alternative resources or natural feedstock.

In meeting the challenges of megatrends, such as energy efficiency, acoustic comfort, lightweighting, the globalisation of food supplies, our product solutions stand out in terms of functionality and ease of installation.

Armacell. Making a difference around the world.



DRIVING SUSTAINABLE GROWTH FOR THE FUTURE

The hospitality industry is the single largest business sector world-wide and represents the third largest socio-economic activity in Europe. While the industry was hit hard by the COVID-19 pandemic, efforts to increase resource efficiency and reduce greenhouse gas emissions have to be enhanced.

Tackling its carbon footprint, which today accounts for eight percent of world emissions, without compromising customer comfort and convenience will be the main challenge for the hospitality industry over the next decades. The technology to decarbonise the sector exists today. Now the challenge is how to accelerate the solutions which are already available.

TOWARDS COMPREHENSIVE SOLUTIONS

Insulating mechanical equipment is one of the simplest and most efficient measures to save energy in buildings. With Armacell's insulation solutions energy costs in hotels, resorts, hostels, conference facilities, health centres and spas can be decreased for many years to come.

Armacell's insulation solutions are fibre- and dust free. They ensure greater comfort for guests, rapid amortisation and minimise the risk of downtime due to unplanned maintenance work. Even renovating while the facility remains operational is no sweat with our easy-to-install solutions.

In addition to optimising the **ENERGY-EFFICIENCY** and providing a safe refuge where guests can relax, hotels must provide conditioned air to protect the health of their residents and staff. Downtime is not an option and maintenance work which could impact the hotel experience must be prevented. When specifying insulation materials, objectives for **ACOUSTIC COMFORT, RELIABLE OPERATION, HYGIENE** and **INDOOR AIR REQUIREMENTS** as well as **FIRE SAFETY** have to be taken into account.



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ENERGY EFFICIENCY



LONG-TERM SAFE OPERATION



FIRE SAFETY

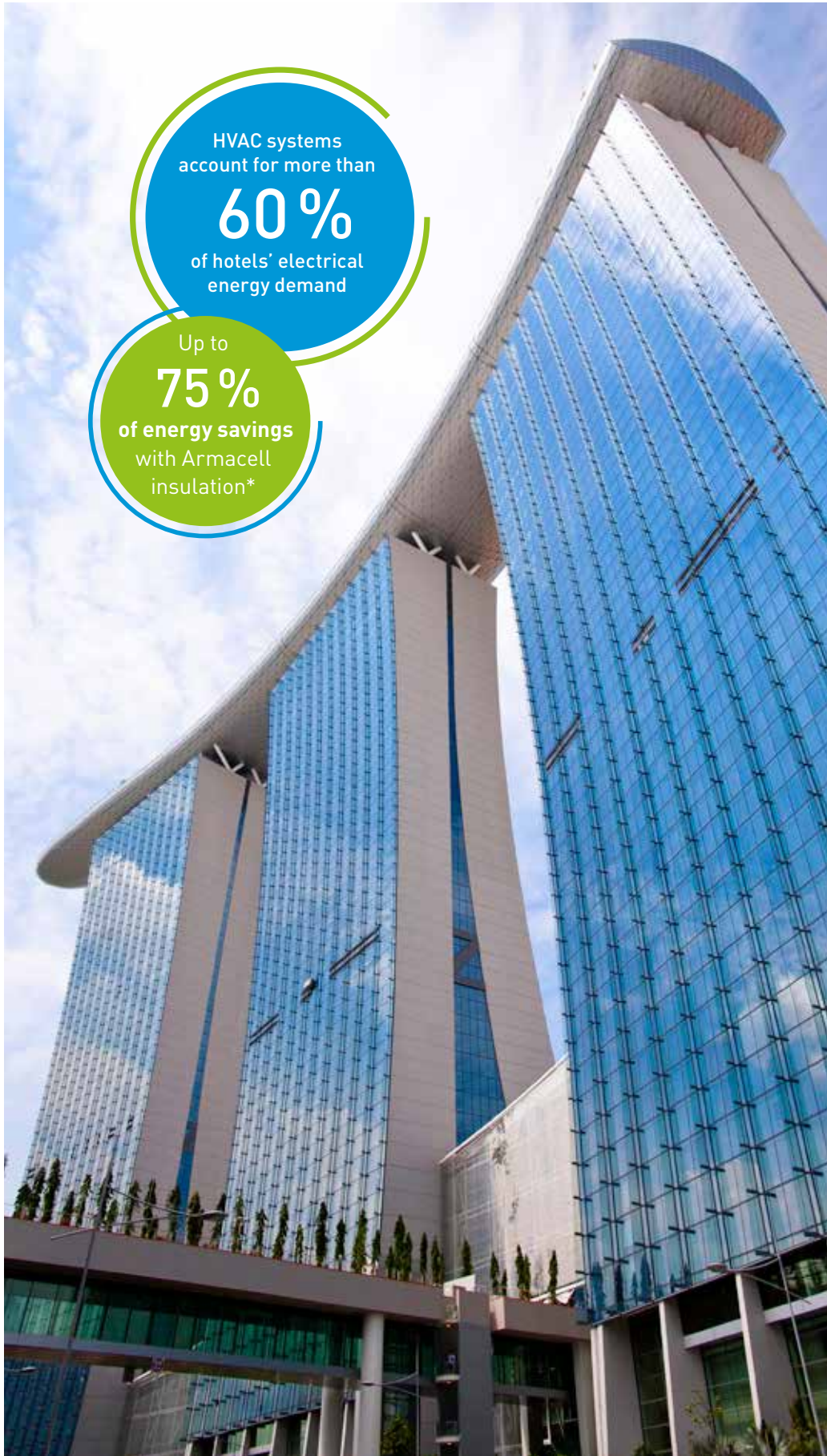


ACOUSTIC COMFORT



HYGIENE REQUIREMENTS





HVAC systems
account for more than
60%
of hotels' electrical
energy demand

Up to
75%
of energy savings
with Armacell
insulation*

MARINA BAY SANDS

Singapore

The Marina Bay Sands Integrated Resort is Singapore's latest landmark and a premier entertainment destination. The eye-catching complex features three hotel towers, two state-of-the-art theatres and the ArtScience Museum – and atop the Marina Bay floats the world's largest infinity pool. Cutting-edge sustainable and energy-efficient solutions include a district cooling system, heat recovery from exhaust air and ArmaFlex® insulation for chilled water pipes and refrigerant tube insulation.

ArmaFlex



* In standard cold applications with
an insulation thickness of 19 mm



INCREASED ENERGY EFFICIENCY WITH ARMAFLEX THERMAL INSULATION

The hospitality industry is one of the most energy- and resource-intensive sectors. Typically, about half of the energy, in North-Europe even 70 percent, is used for space conditioning and heating purposes. Air conditioning has become standard in modern hotels, not just in hot countries. The demand for hot water is immense and the spa area alone often consumes up to 30 percent of the total heating energy.

A medium-category hotel with an average annual occupancy rate of 70 percent has an energy consumption of 1500 to 2300 kWh per room. This is more than the total energy demand of a low-energy house with a living space of 150 m². The key area where major energy savings can be made for comparatively little cost and within a short payback period are heating, ventilation and air-conditioning (HVAC), plumbing and refrigeration systems.

Sustainable hospitality facilities can actually cost less to build, operate and maintain. They can generate substantially more profit and provide economic benefits to all stakeholders. Not to mention the competitive advantage of appealing to environmentally-conscious guests.



While accounting for an average of just 1 percent of the total costs of the technical equipment, insulation materials ensure higher performance, a longer service life and higher efficiency

ArmaFlex saves
140
times more energy
than is needed for
its production

OUR SOLUTIONS

Tapping the significant potential for energy savings in new and existing hospitality facilities brings benefits in terms of lower energy costs and decreased CO₂ emissions.



With our insulation solutions it is possible to achieve considerable energy savings at comparatively little expense. It is often wrongly assumed that a well-insulated building shell is a sufficient barrier to prevent energy losses. However, even in modern, well-insulated buildings substantial energy losses occur due to uninsulated or poorly insulated technical infrastructure.

State-of-the-art insulation of mechanical equipment is one of the easiest and most efficient ways to save energy in buildings.

ArmaFlex is our product heritage. This highly flexible, lightweight insulation features a closed-cell structure and combines a low thermal conductivity with an in-built water vapour barrier. As an independent life-cycle assessment (LCA) revealed, ArmaFlex saves 140 times more energy than is needed for its production. No other energy-saving measure pays off as quickly.





Noise
reduction of
22 dB(A)
with ArmaComfort
AB Alu Plus on
horizontal pipes



ACOUSTIC COMFORT IS ESSENTIAL

FEELING AT
HOME AWAY
FROM HOME
REQUIRES
COMFORT AND
TRANQUILITY.

After a strenuous journey, exhausting meetings or sightseeing tours, hotel guests long for a place of relaxation and comfort. They look for a peaceful sanctuary where they can relax, unwind and enjoy a good night's sleep. However, noise is the number one complaint in guest satisfaction surveys. Effective sound control is therefore a must and determines the successful operation of a hospitality facility. Installing sound insulation once the building is completed is often difficult and specification at the design stage therefore key.

In comparison to conventional products, our multi-layer ArmaComfort AB products achieve greater noise reduction with thinner wall thicknesses.





BRITANNIA HOTEL

Trondheim (Norway)

After a four-year, US\$160 million renovation, Norway's iconic Britannia hotel re-opened in April 2019. Located on the fjords of central Norway and just sixty miles south of the Arctic Circle, the hotel has welcomed politicians, royalty, international stars and Arctic explorers during its more than 120-year history. As a member of Leading Hotels of the World, acoustic comfort was one of the key requirements in the renovation. ArmaComfort® AB Alu Plus was chosen to minimise noise from waste-water pipes.

ArmaComfort AB Alu Plus



We perceive
a reduction of
10 dB
as **half the**
volume

OUR SOLUTIONS

We offer comprehensive solutions for enhanced sound control on mechanical equipment and structural building elements. Our systems provide an effective means of sound absorption or damping, and acoustic improvements can often be combined with the required thermal insulation.



Our ArmaFlex and Tubolit® products have very good structure-borne sound insulation properties on small pipe diameters. As a system with ArmaFix® pipehanger, ArmaFlex acoustically decouples pipes and ducts from the building structure and thus prevents the transmission of structure-

borne noise into the building. Our high-performance, multi-layer ArmaComfort AB solutions provide both sound reduction and acoustic decoupling of waste-water and rainwater pipes. Our latest innovation creates new types of acoustic barriers with excellent transmission reduction and ultra-thin thicknesses. ArmaComfort Barrier products allow space-saving sound attenuation of new and existing building constructions and mechanical equipment.

For applications which demand a high noise absorption, such as housings for emergency power generators, heat pumps and power plants, the open-cell acoustic foam ArmaSound® RD is the ideal solution.



10
YEARS

ArmaFlex System
Warranty



TO PROVIDE A GREAT GUEST EXPERIENCE AND TO OPERATE EFFICIENTLY WITHOUT COMPROMISING CUSTOMER COMFORT AND CONVENIENCE IS THE PRIMARY CONCERN OF HOTEL OPERATORS.

RELIABLE OPERATION FOR THE LONG TERM

A reliable operation of the technical equipment is paramount. Hospitality facilities are criss-crossed by miles of pipes and air ducts. They supply the building with fresh air, warm and cold water, and dispose of waste water. In addition to air conditioning the various areas and facilities in hotels, efficient cooling is also needed for walk-in freezers and refrigerators in hotel kitchens and restaurants.

For technical installations, condensation is enemy number one: if moisture forms on the surface of pipes or water vapour penetrates the insulation material from the outside, the insulation system has failed. Humidity is the source of many problems: a reduced thermal performance because of humidity intake is often the least of them. Mould, corrosion, structural damage, water dripping from suspended ceilings or disruption of processes due to maintenance work can easily result in huge costs.





HILTON AMSTERDAM AIRPORT SCHIPHOL HOTEL

Amsterdam (The Netherlands)

If the hotel industry awarded stars for the insulation concept, the new Hilton Amsterdam Airport Schiphol hotel would certainly have deserved a fifth star. The impressive building complex relies on the tried-and-tested combination of AF/ArmaFlex and ArmaFix AF and the insulation work was carried out under the ArmaFlex System Warranty. The Hilton Schiphol hotel was one of the first major projects in the Netherlands to be designed in BIM (Building Information Modelling) and achieved an "Excellent" rating in the Dutch BREEAM-NL Standard.

AF/ArmaFlex

ArmaFix AF



Hans de Klein

Technical Commercial Director
at Riweltie BV insulation contractors

We realised this project with the ArmaFlex System Warranty. We used AF/ArmaFlex in combination with the ArmaFix AF pipe support and received a project-related warranty of 10 years. A great idea from Armacell.

OUR SOLUTIONS

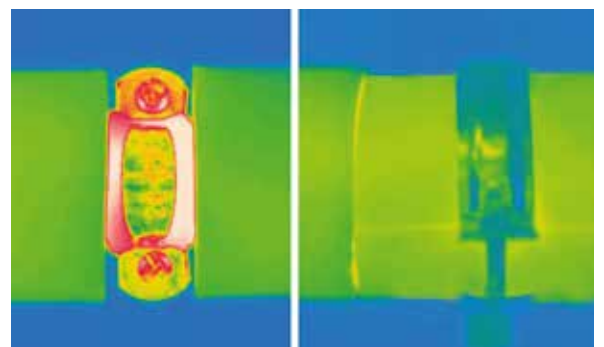
ArmaFlex is a closed-cell insulation with a high resistance to water vapour transmission. Equipment is reliably protected against condensation and energy losses throughout its service life.



We are a provider of systems where individual components fit perfectly together and are tested as a system. ArmaFix pipehangers, our ArmaFlex Protect and ArmaProtect passive fire protection solutions,

flexible Arma-Chek® claddings and ArmaFlex adhesives complement and strengthen the system to guarantee long-term functionality.

To ensure professional application we developed a unique concept: trained ArmaFlex installation partners can be certified by Armacell and receive an extended warranty on AF/ArmaFlex products. In many European countries this certification has established itself as a seal of quality.



ArmaFix pipe hangers (see above right) prevent thermal bridging and condensation, ensuring maximum reliability of the insulation system



IN PARTNERSHIP WITH
ARMACELL, HOSPITALITY
FACILITIES CAN ACHIEVE
TOP-NOTCH INDOOR AIR
QUALITY

Our **dust-
and fibre-free**
insulation protects
against **micro-
organisms**

MICROBIOLOGICAL AND HYGIENE REQUIREMENTS



While existing regulations in many countries already set a high standard, hygiene will become a key quality and differentiation feature in the future. Hotel guests have developed a new awareness of hygiene and possible microbial contamination due to the recent Covid 19 pandemic. By setting new standards and communicating this accordingly, hoteliers are giving guests an enhanced sense of security.

For general health reasons, hotel guests require comfortable indoor air free from dust, irritants, pathogens, unpleasant odours, mould and mildew and other

contaminants. Poor indoor air quality (IAQ) may lead to sick building syndrome and various occupational hazards. Excess moisture in combination with dust and dirt particles provides an ideal breeding ground for microbial growth.

Hospitality facilities pose a particular risk of legionella infections. Hotels provide ideal locations for Legionnaires' disease: the plumbing systems are usually complex allowing bacteria to multiply.



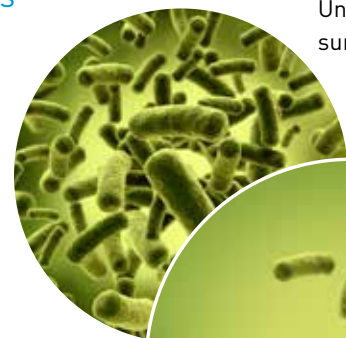
CAESARS PALACE BLUEWATERS

Dubai, (UAE)

Home to Ain Dubai, the world's largest observation wheel, Bluewaters is the latest island destination in Dubai. Comprising two premium hotels, Caesars Palace Bluewaters and Caesars Resort Bluewaters Dubai, over 12 unique dining options, Qua Spa and the hottest entertainment housed in The Rotunda, this new island destination is the place to be in the city. Armacell delivered around 325,000 m² of ArmaFlex sheets and 400,000 m of ArmaFlex tubes for the insulation of HVAC equipment, thus ensure visitors stay cool in Dubai's new hot-spot.

ArmaFlex

Armacell is the only manufacturer of flexible technical insulation materials to provide its premium products with built-in antimicrobial protection: AF/ArmaFlex and SH/ArmaFlex are equipped with Microban®. These antimicrobial additives provide 'proactive' protection against harmful bacteria, mould and mildew.



Unprotected surface



Protected with Microban®

OUR SOLUTIONS

Our ArmaFlex and Tubolit insulation protect hot and cold water pipes against unacceptable temperature fluctuations which can lead to a contamination with legionella and pseudomonas aeruginosa bacteria. Dust- and fibre-free, ArmaFlex products provide protection against micro-organisms.



It is much more difficult for microbes to settle on the smooth, non-porous surface of the elastomeric material than in open-cell mineral fibre and they do not find the nutrients they need to grow. Due to its closed-microcell structure and high resistance to water vapour transmission, ArmaFlex insulation has reliable protection against condensation and moisture ingress. Plus, it has extremely low VOC emissions and can contribute to green building certification schemes.





© Eurostars Gran Hotel La Toja

10
times **less**
smoke with
ArmaFlex
Ultima

HOTELS ARE LIKE
A SECOND HOME
TO MANY GUESTS.
THEY SHOULD
PROVIDE
SECURITY AND
PROTECTION.

FIRE SAFETY IS THE TOP PRIORITY

Fires can never be completely ruled out and they occur unexpectedly. There are no European-wide standards for collecting or analysing data on fires in hotels, which makes it difficult to compare national statistics on fire casualties or fire damage. Given the sheer number of people who either visit or work in hospitality facilities, fire safety in hotels has to be a top priority. Statistics from the United States show that structure fires are reported by 1 out of 12 hotels every year, causing average annual losses of \$127,000,000 in direct property damage. Hotel fires not only result in financial losses, they can also severely damage a hotel's reputation.

In the event of a fire, smoke poses a much greater threat than the fire itself: 95 percent of fire fatalities die as a result of smoke inhalation. If a fire breaks out in a hotel, low smoke density can mean the difference between life and death.





EUROSTARS GRAN HOTEL LA TOJA

Isla de La Toja (Spain)

Opened in 1907, the Gran Hotel La Toja has attracted such renowned people as Ortega y Gasset and Gabriel García Márquez in its more than one-hundred-year history. When the heating and plumbing systems of this amazing place had to be renovated, it was without question that they would be insulated with ArmaFlex Ultima and installed with the solvent-free ArmaFlex Ultima SF990 adhesive.

ArmaFlex Ultima

ArmaFlex Ultima SF990



OUR SOLUTIONS

At Armacell, safety comes first and maximum reliability is crucial.



Our systems increase the fire safety in buildings. By mitigating the fire and smoke risk, they improve visibility and respiration, thus extending the time to

safely evacuate a building in the event of a fire.

With ArmaFlex Ultima we have set a new safety standard in technical insulation. Based on the patented Armaprene® technology, ArmaFlex Ultima is the first flexible technical insulation material in the world with fire class B_L-s1,d0. In comparison to a standard elastomeric product, the flame-resistant insulation material exhibits 10 times less smoke.



To prevent fire spreading from one room to another, passive fire protection has a significant impact on safety in hospitality facilities.

ArmaFlex

Protect and ArmaProtect systems have fire-stopping components which seal off pipe penetrations in fire-resistant walls or floors.



AT YOUR SERVICE



At Armacell, we are committed to creating an exceptional customer experience. We understand the challenges in today's hospitality industry and are here to help you complete your projects successfully. From the planning stage to the handover – our 360° service supports you throughout. At Armacell, we do all we can to ensure your project receives a five-star review.

ARMACELL APPLICATION TRAINING

No other insulation material can be installed as reliably, neatly, simply and as fast as ArmaFlex solutions. To ensure that our thermal and acoustic insulation materials are installed properly, Armacell has trained several thousands of installers around the world. Special training centres have been set up at many locations and we also provide valuable support on site. Several thousand insulators attend courses on installing Armacell products every year and are awarded the ArmaFlex application certificate.

EPDs FOR SUSTAINABLE BUILDING ASSESSMENT

Armacell is the first manufacturer of flexible technical insulation materials to present third-party verified environmental product declarations (EPDs). They are based on an independent lifecycle assessment (LCA) and are the key to designing green buildings in accordance with green-building schemes, such as LEED®, BREEAM®, DGNB, HQM, and others.

ARMWIN – PROFESSIONAL INSULATION CALCULATIONS

With our powerful ArmWin software you can carry out all common technical calculations in HVAC applications - even on the building site, thanks to the app. You can easily determine not only the minimum insulation thickness required for condensation control, but also surface temperature, heat flow, temperature changes in flowing and stationary media, freezing times for water pipes and the most economical insulation thicknesses, i.e. those with the shortest pay-back periods.



ArmWin
All technical insulation calculations in one tool.

BIM PLUG-IN FOR PLANNING TECHNICAL INSULATION



The future of construction is digital: Business Information Modelling (BIM) allows buildings to be planned, built and operated digitally from design to commissioning, maintenance, demolition and disposal. Armacell's BIM plug-in is seamlessly integrated in the AutoDesk® Revit® program and provides key product information. The software accesses the data required directly in the model and supports the user in choosing and configuring products.

HOSPITALITY FACILITIES AROUND THE WORLD ARE RELYING ON OUR PROVEN SOLUTIONS



TRACK RECORD

To name just a few of the **successful projects**.

// China

Ascott Raffles, Chengdu

// Cyprus

Merit Otel, Girne

// Czech Republic

Four Seasons, Prague
Don Giovanni, Prague
Clarion Congress Hotel, Prague
Occidental Praha Five, Prague

// Denmark

Bella Sky Hotel, Copenhagen

// United Arab Emirates

Caesars Hotel Bluewaters, Dubai
Aloft Hotel - Al Raffa, Dubai
Rove Hotel (Expo 2020), Dubai
Le Méridien Mina Seyahi, Dubai
Hyatt Centric, Dubai
Royal Atlantis Resort, Dubai
Jumeirah Beach Resort, Dubai
Jumeirah Gate, Dubai
Atlantis the Palm, Dubai
Fairmont Residence, Dubai

// France

Le Cheval Blanc, Lembach
Mariott - Îlot Bataclan, Bordeaux
DA Hotels - Plaza, Nice

// Germany

Hyperion, Hamburg
The Fontenay, Hamburg
The Westin, Hamburg
Motel One am Michel, Hamburg
Motel One, Berlin

// Hong Kong

Ritz Carlton, Kowloon

// India

Grand Hyatt, Mumbai
JW Marriott, Bangalore
Le Méridien, Coimbatore
Radisson Blu, Delhi

// Jordan

Ritz-Carlton Residences, Amman

// Kingdom of Saudi Arabia

Al-Esayi Plaza, Jeddah
Jabal Omar Grand Aston, Makkah
Marriott, Riyadh
Movenpick, Riyadh

// Macau

The Venetian Macao, Macau

// Netherlands

Hilton Airport Schiphol, Amsterdam

// Norway

Britannia, Trondheim
Comfort Hotel Xpress Central Station, Oslo

// Oman

Rotana, Muscat
Kempinski, Muscat
Hilton Garden Inn, Muscat
JW Marriott, Muscat
Crowne Plaza, Sohar

// Portugal

Grupo Hotel da Baixa - Blue Liberdade, Lisbon

// Qatar

Al Mana Edition, Doha
Hilton, Doha

// Singapore

Marina Bay Sands

// Slovakia

Hotel Devin, Bratislava

// Spain

Selenta - Gran Hotel Torre Catalunya
IKOS Resorts - Málaga
Hoteles Silken - El Pilar Andalucía
Puerto Marina Hotel, Almería
Eurostars Gran Hotel La Toja, Pontevedra

// Turkey

Mylome Otel, Gündoğdu
Hilton Double tree, Muratpaşa
Pegasus Fethiye, Fethiye
Granada Otel Belek, Serik

// United Kingdom

Old Bailey, London
Point A Hotel, London
Hampton by Hilton Hotel, Edinburgh
Aloft, Aberdeen
SECC Hotels Development, Glasgow
Unite the Union, Birmingham
New Parliament House, Edinburgh

// USA

Grand Hyatt Convention Center, Miami Beach, FL
JW Marriott, Orlando, FL
Legoland Hotel, Winter Haven, FL
Marine Wharf Hampton Inn, Boston, MA
Homewood Suites by Hilton, Boston, MA
Ritz Carlton, Paradise Valley, AZ

SMART SOLUTIONS FOR YOUR BUSINESS

Enjoy the benefits of our excellent customer service.

All over the world, our customers rely on sales representatives, technical consultants and applications engineers.

Your project demands more. You deserve the best solution. Get the original closed-cell thermal and acoustic solutions from Armacell.

All data and technical information are based on results achieved under the specific conditions defined according to the testing standards referenced. Despite taking every precaution to ensure that said data and technical information are up to date, Armacell does not make any representation or warranty, express or implied, as to the accuracy, content or completeness of said data and technical information. Armacell also does not assume any liability towards any person resulting from the use of said data or technical information. Armacell reserves the right to revoke, modify or amend this document at any moment. It is the customer's responsibility to verify if the product is suitable for the intended application. The responsibility for professional and correct installation and compliance with relevant building regulations lies with the customer. This document does not constitute nor is part of a legal offer or contract. By ordering/receiving product you accept the **Armacell General Terms and Conditions of Sale** applicable in the region. Please request a copy if you have not received these. At Armacell, your trust means everything to us, so we want to let you know your rights and make it easier for you to understand what information we collect and why we collect it. If you would like to find out about our processing of your data, please visit our **Data Protection Policy**.

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ABOUT ARMACELL

As the inventors of flexible foam for equipment insulation and a leading provider of engineered foams, Armacell develops innovative and safe thermal, acoustic and mechanical solutions that create sustainable value for its customers. Armacell's products significantly contribute to global energy efficiency making a difference around the world every day. With 3,135 employees and 24 production plants in 16 countries, the company operates two main businesses, Advanced Insulation and Engineered Foams. Armacell focuses on insulation materials for technical equipment, high-performance foams for high-tech and lightweight applications and next generation aerogel blanket technology. For more information, please visit www.armacell.com

For product information, please visit:
www.armacell.eu


MAKING A DIFFERENCE AROUND THE WORLD