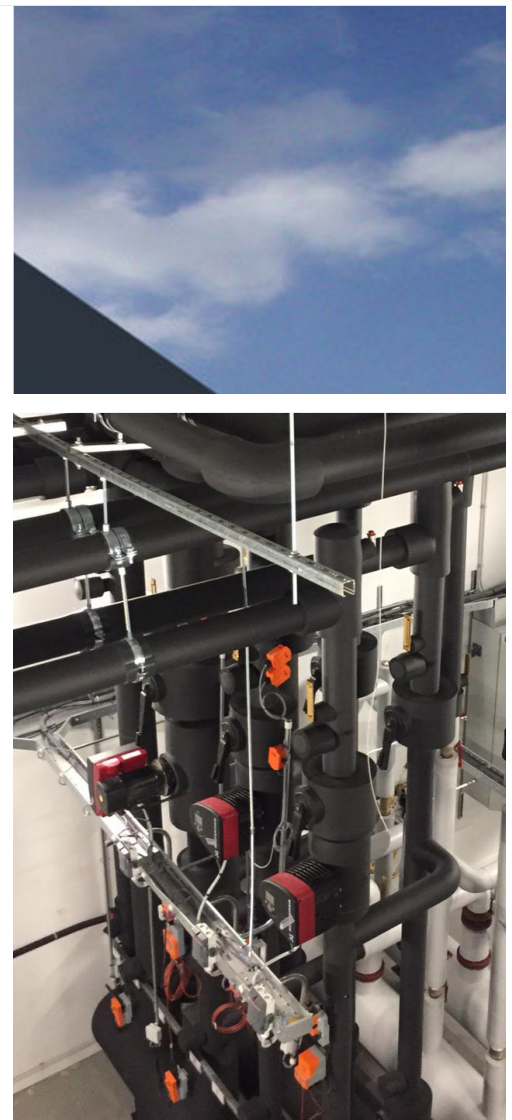


ARMACELL IN ACTION

De Bijenkorf's new DC

The challenge was to build a future-proof logistics operation for Netherland's renowned chain of department stores in record time. In de Bijenkorf's new distribution centre sustainability and the employee are central. Discover how Armacell's technical insulation solutions provide reliable condensation control and long-term energy efficiency in Netherlands' most sustainable warehouse.

www.armacell.com



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

TOP QUALITY DESPITE HIGH TIME PRESSURE

The Quality and reliability of the insulation is paramount: De Bijenkorf's new distribution centre relies on the tried and trusted combination of AF/ArmaFlex® insulation and ArmaFix® AF pipe supports. The insulation work in this BREEAM®-NL 'Outstanding' building was carried out under the ArmaFlex System Warranty.

De Bijenkorf is the most renowned chain of premium department stores in the Netherlands. The expanding company has now built a new distribution centre in the Dutch city of Tilburg. The new logistics centre supplies seven Dutch department stores and the e-commerce activities outsourced to Ingram Micro CLS Benelux will also be carried out here. The new logistics centre has a storage area of 41,500 m², 6,500 m² of mezzanine floors and 3,200 m² of office space.

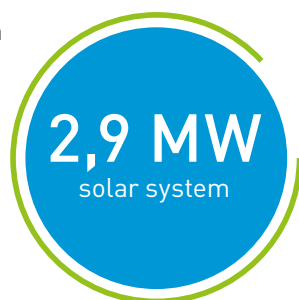
41,500 m²
storage area

3,200 m²
office space



100% CO₂ neutral building

The new building was delivered as a turnkey project and built to the highest standards for logistics real estate. The developer, HVBM Vastgoed, and Ingram Micro CLS Benelux were aiming for BREEAM 'Outstanding' certification and BREEAM expertise was provided by the consulting firm Quadrant4. The building is heated and cooled by a heat and cold storage system and equipped with solar panels that generate a total of approximately 2.9 MW of energy. That is more than enough to supply 1200 households in Tilburg with electricity. The high degree of sustainability is also reflected in a gas-free air-conditioning system and the energy-efficient insulation of the technical equipment. All this has resulted in a 100 percent CO₂ neutral building.



THE ROYAL BIJENKORF

What Harrod's is for London or the KaDeWe for Berlin, De Bijenkorf is for Amsterdam. Even Queen Beatrix went shopping here during her reign (usually incognito). The neo-baroque building is located on the pulsating Dam in the middle of the medieval city centre. De Bijenkorf (literally meaning "the beehive") is one of the most famous department stores in the world. It is not only a part of many Dutch people's cultural heritage, but also one of the highlights of the city for visitors, alongside a canal trip, a visit to the Rijksmuseum and the Royal Palace. In addition to its numerous branches, the Dutch premium department store chain also operates an online shop that is known far beyond the borders of the country.




PROJECT INFORMATION

CLIENT	Ingram Micro CLS Benelux
DEVELOPER	HVBM Vastgoed
EXECUTION	Heerkens van Bavel Bouw
BREEAM CONSULTING	Quadrant4
HVAC CONSULTING	HV Real Estate Consultancy
AIR CONDITIONING	H. de Bont Klimaattechniek
SANITARY SYSTEMS	A. Bierings
INSULATION	Isol-Protect & Hebo-Solutions



UNIQUE AND SUSTAINABLE ENERGY CONCEPT



H. de Bont Klimaatechniek from Tilburg was responsible for planning and realising all building services installations (with the exception of sanitary systems). The company implemented an innovative heat and cold storage system that uses geothermal energy for heating and cooling the building. The geothermal probes are connected to two water-to-water heat pumps using the refrigerant HFO-1234ze. This refrigerant has a GWP value of <math><1</math> and earned important credits for the BREEAM-NL certification. An induction system with four pipes was created for the heating and cooling supply in the offices, allowing demand-controlled heating and cooling. Radiant panels were installed in the warehouse; a sustainable choice because they heat at a low temperature.

“The panels and pipes can also be used for cooling,” says Ruud van Elsacker, project manager at H. de Bont Klimaatechniek. “To do this, the valves on the manifold are simply switched over”. So-called air socks, built by Ingram Micro, were installed in the picking towers. These air socks, essentially flexible air ducts made of fabric, are connected to two ventilation units with 44,000 m³/h each and provide the picking towers with ventilation, heating and cooling.

“The construction of the Bijenkorf distribution centre is the largest assignment H. de Bont Klimaatechniek has ever undertaken, in project size and man-hours. We had to pull out all the stops to complete this job professionally and on time. The fact that we succeeded makes us very, very proud.”



Ruud van Elsacker,
Project Manager at H. de Bont Klimaatechniek

Insulation of
7,000 m
 pipes in just
6 months

Components such as valves and shut-off valves could only be insulated at a later stage.



INSULATION WORK UNDER TIME PRESSURE

The insulation company worked under enormous time pressure. The employees of Isol-Protect from Tilburg had just six months in which to insulate the technical equipment of the new distribution centre. "We had to carry out the insulation work while the installation of the technical equipment was still incomplete," explains Isol-Protect's Managing Director Peter Gorka. "This meant that in the first step, we could only insulate the straight pipes. Bends, T-pieces, branches and fittings then followed after the leak test had been carried out. So we had to come back to each pipe, check that everything was okay and then insulate the bends and fittings. And we're talking about almost 7 km of pipes."

To protect the pipes against mechanical damage, parts of the installations in the technical areas were later clad with Armacell's IsoTop products.

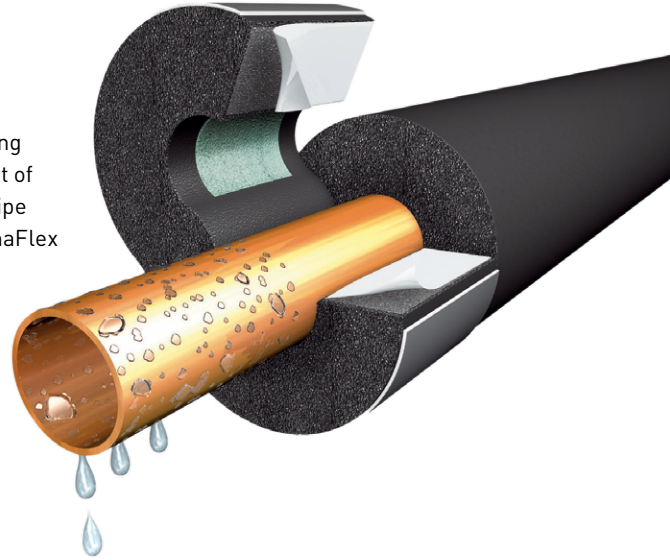
SYSTEM SOLUTION WITH ARMAFIX PIPE SUPPORT

ArmaFix pipe supports, specified by HV Real Estate Consultancy for mounting the pipes, allowed the installers at H. de Bont to save a considerable amount of time on this time-critical project. This pipe support thermally isolates the pipe and its fixing from each other. Together with the subsequently installed ArmaFlex material, it forms an insulation system for refrigeration equipment which is reliable in the long-term.

The pipe support consists of AF/ArmaFlex, in which segments made of pressure-resistant, environmentally friendly PET are embedded. On the outside, two varnished aluminium shells are glued around the elastomeric insulation material which both spread the load and act as an additional vapour barrier. The pipe support not only offers maximum reliability, it can also be installed easily, quickly and neatly.

When using standard clamps it is necessary to insulate the pipe as close to the clamp as possible and then fabricate and install a fitting cover for the clamp.

In contrast, ArmaFix is simply laid around the pipe and closed with the self-adhesive seal on both sides of the support. Later the insulator glues the butt ends to the tube material. Compared to installing insulation material on conventional supporting devices, using ArmaFix AF allows savings in terms of time, material and money.



THE ARMAFLEX EXPERTS

Isol-Protect is a real ArmaFlex expert. The insulation company from Tilburg has more than 30 years of experience in the application of elastomeric insulation materials and is an Armacell-certified insulation company. All employees are trained in the installation of ArmaFlex and take part in application workshops regularly. The insulation work was carried out under the ArmaFlex System Warranty.



“ArmaFlex products are supple and flexible. The tubes and sheets are easy to cut and install. Especially with such a tight schedule using quality products is vital. Thanks to the good cooperation with the pipe-fitting company we’ve made sure that everything works perfectly.”

Peter Gorke
Managing Director at Isol-Protect

QUALITY AND RELIABILITY ARE DECISIVE

“ArmaFlex is a quality product, but the performance and reliability of the insulation depends on how professionally it is installed,” says Henk van Vliet, the consultant responsible for the technical installations. “That’s why we not only specify ArmaFlex and ArmaFix, but also explicitly ask for the ArmaFlex System Warranty to ensure that the products are installed correctly. In addition, we always offer an on-site assessment of the insulation work before we carry it out. We have about ten metres of the system with critical parts insulated as a small test

application before the company starts the project. We then discuss the result with the pipe fitter and the insulator. In this way we ensure a professional installation. The warranty scheme vouches for quality, because the key technical properties (water vapour transmission, thermal conductivity and fire behaviour) of AF/ArmaFlex are constantly monitored. The ArmaFix AF pipe supports are always specified as standard by HV Real Estate Consultancy. They ensure a closed and secure insulation system for the pipe mounting and save time,” says Henk van

Vliet. “Trained and certified insulators ensure that the products are applied professionally.”

An insulation system is only reliable if the insulation material is installed professionally. Henk van Vliet explains his approach as follows: “On the construction site, we’re in constant contact with the insulators and explain our requirements to aid understanding. Personal contact creates a sense of working together.”

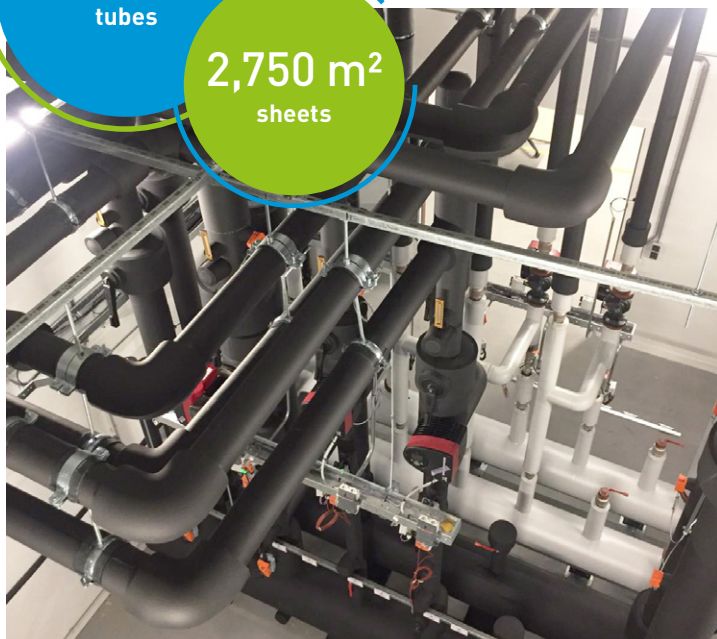
“Armacell is a well-known brand that keeps quality high and offers a range of products for specific solutions. A company that always tries to offer new, useful services, such as the ArmaFlex System Warranty.”

Henk van Vliet,
Responsible consultant at HV Real Estate Consultancy



6,100 m
tubes

2,750 m²
sheets



At the Bijenkorf distribution centre, all parties benefited from this support: in just six months a team of ten insulators installed 5,500 m of AF/ArmaFlex AF-3 tubes and 2,750 m² of ArmaFlex sheets with an insulation thickness of 19 mm. The pipe diameters ranged from 22 to 250 mm. To protect them from mechanical damage, parts of the equipment in the plant rooms were later clad with IsoTop products from Armacell.

The sanitary water pipes were also insulated with ArmaFlex. Hebo-Solutions from Nuenen carried out this work on behalf of the plumbing company Bierings from Diessen. Water pipes with diameters ranging from 15 to 50 mm were insulated with approx. 600 m of AF/ArmaFlex AF-2 tubes.

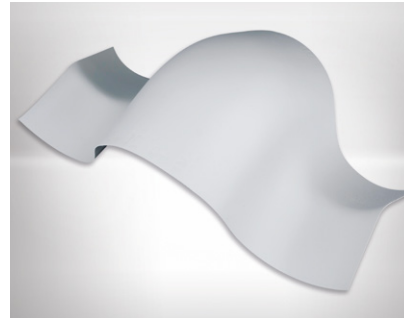
The insulation work in this BREEAM-NL ‘Outstanding’ building was carried out under the ArmaFlex System Warranty.

PRODUCTS AT A GLANCE



// AF/ArmaFlex

Thanks to a unique combination of technical features and easy installation, AF/ArmaFlex offers superior performance at low total cost. The material ensures reliable protection against condensation and energy losses over the entire lifetime of the insulated equipment.

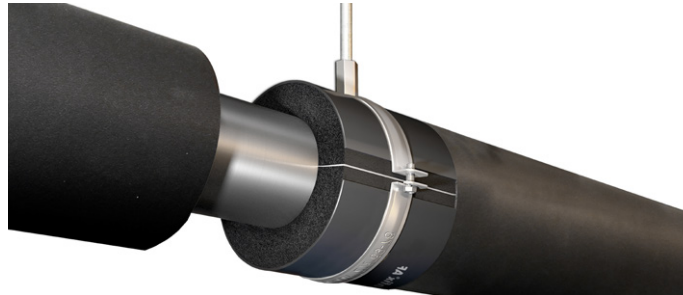


// IsoTop

Versatile PVC cladding system for insulated pipes, bends, branches and fittings protects the insulation against damage and mechanical stress.

// ArmaFix AF

ArmaFix pipe support thermally isolates the pipe and its fixing from each other and, together with the subsequently installed ArmaFlex insulation, forms an insulation system for refrigeration equipment with long-term reliability.



MORE CERTAINTY WITH ARMAFLEX SYSTEM WARRANTY

Armacell's unique partner concept: With the ArmaFlex System Warranty, trained and certified insulation companies benefit from a warranty of up to ten years, which goes beyond the statutory two-year quality guarantee.

The warranty not only gives certified companies a direct competitive advantage, specifiers, trade partners and customers also benefit from this seal of quality. Because quality and reliability are crucial in cold insulation, in many markets insulation companies regularly take part in Armacell training courses and have been certified as trained ArmaFlex application companies.



AT YOUR SERVICE



At Armacell, we are committed to creating an exceptional customer experience. We understand the challenges in today's construction 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 runs smoothly.

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.

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.

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® programme and provides key product information. The software accesses the data required directly in the model and supports the user in choosing and configuring products.

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
All technical insulation calculations in one tool.

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 to sell or to contract.

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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