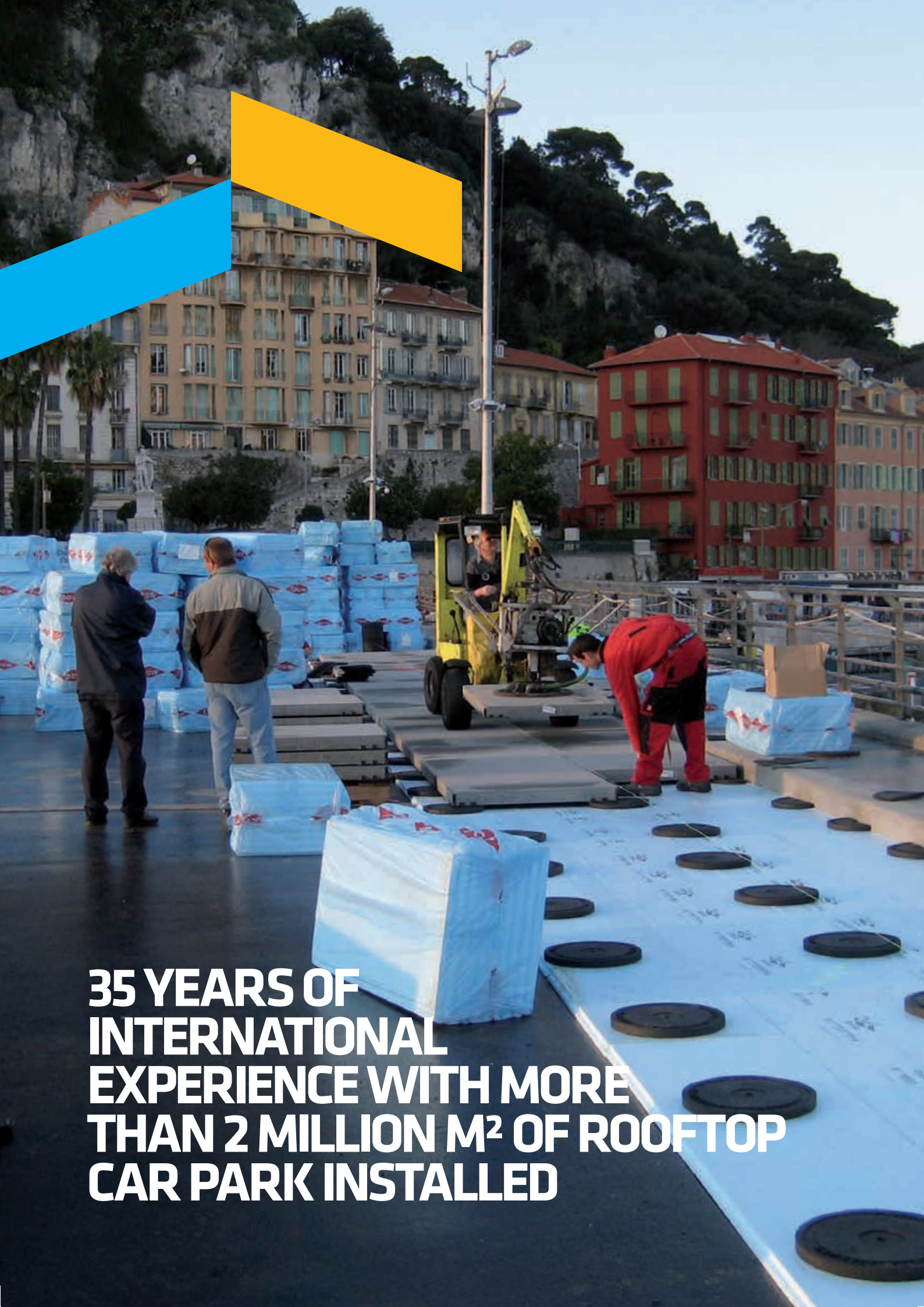




REFURBISHMENT OF ROOFTOP CAR PARKS

USING THE REMOVABLE
PARDAK® SYSTEM



**35 YEARS OF
INTERNATIONAL
EXPERIENCE WITH MORE
THAN 2 MILLION M² OF ROOFTOP
CAR PARK INSTALLED**

PARDAK®

FLEXIBLE AND ADAPTIVE SYSTEM

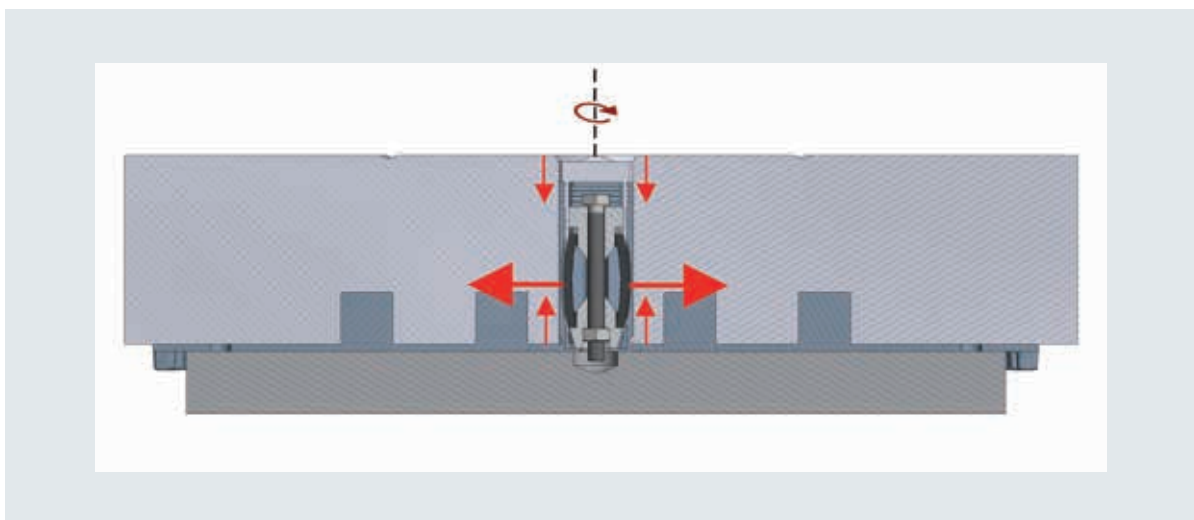
In the process of modernisation and improving sustainability, many buildings and shopping centres in Europe are currently being refurbished. By opting for modular materials and systems that can be deployed flexibly, the continuity of the business is guaranteed, as far as possible. Shop owners and customers experience minimum nuisance during the refurbishment work. Pardak® is a system that, thanks to its remarkable characteristics, offers advantages for the refurbishment of rooftop car parks. When it comes to refurbishment, ever growing numbers of consultants and real estate managers are opting for the Pardak® rooftop car park from Zoontjens.

THE PARDAK® SYSTEM

Pardak® is a removable modular system for rooftop car parks. It is also a flexible and adaptive system when it comes to changing the roof layout and/or installations. The system consists of high-quality precast concrete roof slabs, corner sections, tensioning elements and pressure distributor pads made from compressed high-quality rubber granulate. This specially developed patented system helps guarantee the stability of the rooftop car park. The design of the corner sections, tensioning elements and pressure distributor pads combined with a large format slab, ensures there are fewer joints, driving noise is reduced, and rainwater is rapidly and efficiently guided to rainwater discharge points on the roof. These advantages mean that over the past few years, many large national and international rooftop car parks have been renovated using the Pardak® systems from Zoontjens. Our clients include Newcastle City, Karstadt-Redevco, Corio, ECE, Galeries Lafayette and Unibail-SNCS.

PARDAK® SYSTEM:

- † Can be installed in phases
- † Moves independently of the building and the concrete floor
- † Installation irrespective of weather conditions
- † No more rooftop ponding
- † Easy to dismantle, with simple access to the insulation and waterproof membrane



Cross-section of Pardak®110 system with tensioning element

MINIMAL LOSS OF PARKING SPACES DURING REFURBISHMENT



RETENTION OF PARKING FACILITIES DURING REFURBISHMENT

During the refurbishment of a project, it is essential to minimise inconvenience to users and owners alike. The Pardak® system from Zoontjens meets these requirements perfectly. The laying of precast roof slabs can be carried out much faster than the in situ concrete or asphalt. The Pardak slabs can be driven on immediately following laying. The system can be laid in phases, so that part of the rooftop car park remains accessible, at all times. In other words, it is not necessary to close down the entire car park during refurbishment.

Independent of weather conditions

The method for laying a Pardak® rooftop car park is also entirely independent of weather conditions. This reduces overall execution time and prevents production overruns. Working irrespective of the weather offers the additional advantage of saving time and money.

ADVANTAGES OF PARDAK® FOR REFURBISHMENT:

- † *Rapid installation time thanks to precast system*
- † *Part of rooftop car park remains in use*
- † *Minimum nuisance to shop owners and customers*
- † *Installation irrespective of weather conditions*
- † *Lifecycle in excess of 30 years*
- † *Flexible and adaptive system for changes to roof layout and installations*



Before



After

YOU ARE GUARANTEED AN IDEAL SOLUTION THAT IS TECHNICALLY SOUND AND AESTHETICALLY PLEASING

REFURBISHMENT FOR ALL ROOF TYPES

Is the existing roof seriously damaged? Are there problems in the underlying structure? Or are there technical limitations or design constraints? No two roof refurbishment projects are the same and every project requires a systematic but bespoke approach. With our many years of expertise, we would be pleased to offer any assistance you require, to ensure the success of the complete refurbishment process. The Pardak® system comes in three different types: for light, normal or heavy traffic.

† Pardak®80 for office buildings and low traffic intensity applications

† Pardak®110 for businesses and shopping centres with high user intensity and regular traffic movements

† Pardak®XL for businesses and shopping centres with heavy traffic flows

FROM DESIGN THROUGH TO MAINTENANCE

Together, we will achieve the ideal solution for your rooftop car park application that is both technically sound and aesthetically pleasing. If required, we can take responsibility for every aspect of the refurbishment project. As well as designing and installing the new rooftop car park, we will also take responsibility for demolition work and site clearance.



Together with you we will investigate the options, offer advice for the design and deal with any difficult details as they arise.

GREATER RETURN THANKS TO 30 YEAR PLUS LIFECYCLE

The Pardak® system has been developed through close cooperation since 1977 with Dutch and German experts in the field of rooftop car parks, including BDA Dakadvies, TNO and the Universities of Munich and MPA Braunschweig. With our state art production plants, all Pardak® concrete slabs, tested by Güteschutz Beton NRW, are guaranteed to comply with the highest concrete quality and strict construction and quality requirements, including the European DIN EN 1339 standard.

BDA recently completed a durability study in the framework of 35 years of Pardak. In its report, BDA concluded that Pardak® very successfully fulfils its primary function, namely parking with all normal parking movements. In addition, subject to correct maintenance, the lifecycle of rooftop car parks using Pardak® is estimated at more than 30 years. For both new building and refurbishment projects, this long lifecycle phase guarantees a high return on investment.

SUSTAINABLE SYSTEM

As a result of ever higher building density and growing inner city traffic volumes, project developers and real estate managers are becoming increasingly aware of the added value of rooftop facilities. Rooftops are no longer simply the final item in the budget, with the sole purpose of keeping a building watertight. Instead, they are becoming ever more valuable areas, not only for parking but also for their potential contribution to the sustainability of the building. Zoontjens has been responding to this trend for years, with its Pardak® system, by developing greener concrete, using recycled materials and ensuring that all its business processes are rendered more sustainable in accordance with the ISO 14001 and 26000 standards. A Life Cycle Analysis (LCA) report was recently produced by the NIBE, the Netherlands Institute for Building Biology and Ecology. More information is available in our Technical report 'Sustainable Rooftop car parks'.

TNO innovation
for life



TUM
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MÜNCHEN



Güteschutz Beton NRW
Beton- und Fertigteilwerke e.V.

iBMB MPA
TU BRAUNSCHWEIG

CRH





OUR TESTIMONIALS INCLUDE:

- † Eldon square, Newcastle, United Kingdom
- † Mariahoeve, The Hague, Netherlands
- † Piazza shopping centre, Gorinchem, Netherlands
- † Neringpassage, Lelystad, Netherlands
- † De Tuinen shopping centre, Naaldwijk, Netherlands
- † Bloemendal shopping centre, Gouda, Netherlands
- † Rijnkade, Utrecht, Netherlands
- † Shopping 1 Genk, Belgium
- † Parking Mediamarkt, Zwijnaarde, Belgium
- † Westland shopping centre, Anderlecht, Belgium
- † Centre Commercial, Chelles, France
- † Parking Infernet, Nice, France
- † Galeries Lafayette, Lyon, France
- † Garage Jaguar Luxemburg, Luxembourg
- † Reeperbahn, Hamburg, Germany
- † Postbank, Hamburg, Germany
- † Stadthaus, Bad Hersfeld, Germany
- † Am Plarrer, Nuremberg, Germany
- † Garagenhof, Würzburg, Germany
- † Hotel Meridian, Munich, Germany
- † Karstadt, Neugraben/Duisburg/Kaiserslautern/Wiesbaden/Eschweiler, Germany

These specifications, constructions and details were prepared according to the latest technological developments and with the greatest possible care. Zoontjens International B.V. accepts no liability whatsoever for any errors or inaccuracies or their consequences. In the interests of innovation and improvements, we reserve the right to make any necessary changes to the products and systems.

WHAT IF THE WORLD WERE TWICE AS BIG

It can be, as far as we're concerned. Our world, twice as big. A world that we are helping to design and construct perfectly with our roof slab systems. Our many years of experience have made us the number one expert in rooftop paving. For sustainable roofs, livable roofs for socialising. We interact with architects and contractors every day. With roofers and project developers. Creators and constructors. We listen to them, work with them and advise them. That's why we're the number one party with the best rooftop vision. It's our higher ground.