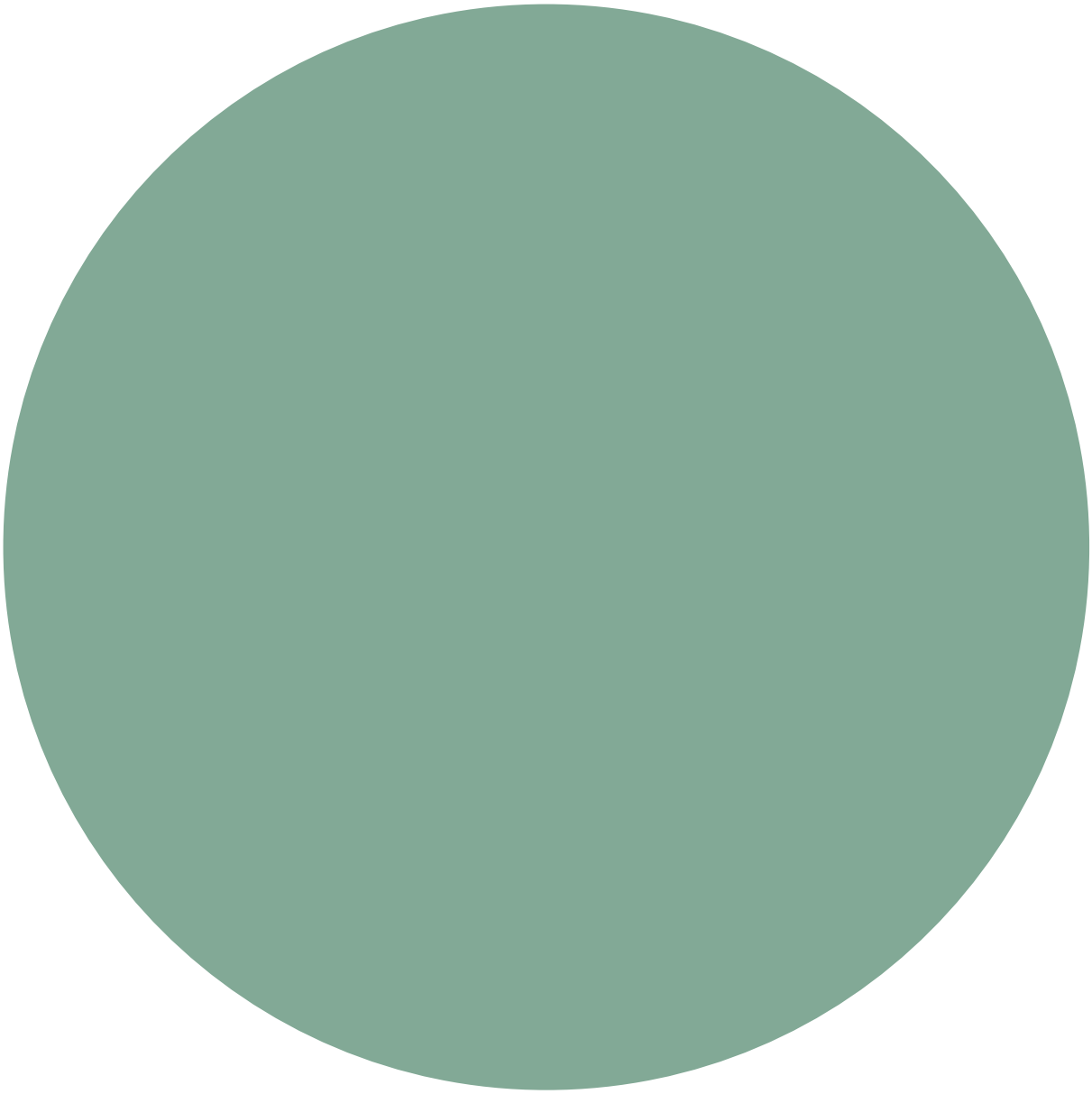
GLOBAL REPORT 1



DENYS GLOBAL

Dare to dream

Johan Van Wassenhove
CEO Denys Group

I've met a lot of fascinating customers lately. Brimming with ideas, dreaming their most daring dreams.
From Europe to Africa and the Middle East, I've seen local authorities hoping to transform their districts into dynamic regions, and business people aspiring to make this world a better place for us all.
'Why not?' I exclaim, 'Dare to dream!'

These customers may be inspired by the power of entrepreneurship, but they also harbour uncertainties. They are thrown into doubt when they voice their aspirations. "Do you really think it's possible?"

'Of course it is! Dare to dream,' I repeat.

Their faces brighten up. They had expected 'Of course not'. They had been waiting for detailed explanations of technical constraints, budget consequences and timing issues. Because that is what they often hear from construction companies beating off cut-throat competition. Ponderous multinationals trying to dominate the market with a 'me too' approach and fading professionalism. Or small cowboy companies scrabbling for their slice of the cake.

So I tell them about innovative techniques, creative thinking and flexible teamwork (I can still feel the adrenaline as I write this). I dare them to fantasize and reassure them about the actualities.
I urge them to turn their dreams into reality.

'Dare to dream,' I counsel. Because that is what Denys does: unite opposites. Past and future. Aboveground and underground. Specialized and multidisciplinary. Deadlines and thoroughness. A sharp eye for details and a helicopter view. Vast experience and innovation. Pioneering, but with decades of credibility.

We love to be at the heart of those projects that make dreams come true. Ambitious projects that provide the world with what it needs: water, energy, mobility, civil works. That's why we've produced this global report: to let you share in our team's sense of ambition. To read about the projects they are proud of, to admire their dynamism, to see their craftsmanship. Above all, to encourage you to dream.
And if you do, then don't hesitate to tell us your dreams. We won't say 'Impossible'.

We'll say: Dare to dream!

What the world needs

Water

Action is needed

Safe drinking water is essential to each of us. Every person on earth needs 20 to 50 liters of clean water a day for drinking, cooking and basic hygiene. But this fundamental human need is still a luxury for a large part of the world's population. Over 1 billion people lack access to a safe source of drinking water. Some 1.8 million people die every year from diarrheal diseases. And earth's population is still growing. An extra three billion people will require access to our already scarce water resources in the next 50 to 75 years.

The United Nations' Millennium Development Goals (MDGs) relate almost entirely to water. Governments have roles to play and investments to make. Intensive, effective and concerted action by all stakeholders is needed. It is our firm belief that **the expertise and the engagement of socially responsible entrepreneurs in the northern hemisphere can be leverage for the achievement of those goals.**

The industrialized world is also facing challenges when it comes to water, waste water treatment, storm water control and irrigation are making a real impact in tackling these problems. But a great deal of progress still has to be made to provide rural areas with more effective sanitation. And utility companies must guarantee the operational reliability of ageing and progressively more complex infrastructure, while saving on maintenance and exploitation costs at the same time.

Be it in developing countries or the industrialized world, **Denys wants to be engaged in answering today's and tomorrow's global water challenges.** Engaged in and adapting to the local situation. Finding tailor-made solutions.

DRINKING WATER SUPPLY IN SUB-SAHARAN AFRICA

RITUAL DANCE

for first drop of drinking water

Enthusiastic villagers welcome long-awaited fresh water. We share in their joy, happy in the knowledge that we've provided drinking water for thousands of people in Africa so far.

DRINKING WATER SUPPLY IN SUB-SAHARAN AFRICA

Expertise & company culture welcomed

> We not only adapt to local people's conditions and culture but also gain from their knowledge and experience.

When it comes to the supply of drinking water, sub-Saharan Africa remains the world's greatest concern. That is why it has become a base for Denys since the beginning of this century. Local decision makers welcome us for our expertise and our technologies, but it's the perfect match between our company culture and their local customs that convinces them we are the ideal partner.

During the past decade, Denys has successfully carried out several projects for drinking water supply and sanitation in Ghana, Niger and the Democratic Republic of Congo. We have a workforce of more than 400 employees in the region and an extensive fleet of equipment with cranes, tower cranes, light and heavy excavators, trucks, shovels and much more.

Safeguarding, robust, easy-to-use equipment

Our main aim is to build sustainable installations that can be operated and maintained without the need for further intervention. Consequently, we select robust, qualitative components. Not sophisticated, high-tech equipment, but reliable installations that are easy to operate manually and can withstand the terrain's extreme weather. It's not the technology that brings innovation to this region, but the manner in which we approach the project and adapt our systems to local requirements.

Finding turnkey solutions for complex situations

Providing turnkey solutions is the only way to effectively master the complexity of infrastructure projects on the African continent. It's not easy here to obtain funding, permits, equipment, experienced workers and good project management. That's why our own expats are in charge of the project from start to finish. We often assist the operation and maintenance teams during the first years of exploitation as well, to ensure a smooth transfer to local operators.

Empowering local people

We invest in the coaching and training of local people by engaging local engineers and workers, and by teaching them technological and managerial skills. This makes us an important employer in the region, but it also gives an enormous injection of expertise into the local economy. But it's not all one-way: when we collaborate with local people, we not only adapt to their conditions and culture but also gain from their knowledge and experience. Together, we invest in the future. That's why local authorities and employees keep coming back to us and join forces to launch their next vital project.

All installations can be operated and maintained without further support from us. We select robust components that are easy to operate and able to withstand extreme weather conditions.

KWANYAKU / GHANA

Sequel to a successful project

Investing in the future

In Kwanyaku, in the south of Ghana, Denys has constructed and commissioned a drinking water treatment plant for Ghana Water Company Ltd. A dedicated quality engineer and maintenance team, hired and trained by Denys, will be assisting the operator for the next two years. As a next step, we have been asked to build an elevated reservoir and 70 km of water pipes to connect the Kwanyaku supply network to the networks of Ghana's capital city Accra.

After completing the drinking water treatment plant, Denys will be staying on-site for two years to provide technical assistance and transfer the necessary skills.

KOFORIDUA / GHANA

On every corner, in every street

First city to provide clean water non-stop

Koforidua, the capital of the eastern region of Ghana, is probably the only Ghanaian city now able to provide clean and safe drinking water to its population of about 90,000, 24 hours per day, 7 days a week. Ghana Water Company Ltd approached Denys to implement the entire water supply system. The water is captured from the Volta Lake more than 35 km outside the city. A water treatment plant, a transportation and distribution network, and several water reservoirs and pumping stations bring the purified water to Koforidua and the surrounding villages.

The network has been designed to distribute more than 17,000 m³ each day of purified water to the city of Koforidua, enough to provide the ever-growing population with continuous fresh water, now and in the future.

NIGER

Hidden in the heart of the desert

The 30 m high water tower collects drinking water from the border of the desert, ready to be distributed to the citizens of Agadez.

Drinking water from under the rocks and sand for Agadez

In Niger, Denys accomplished a water abstraction system at the border of the Sahel and the Sahara desert, about 30 km west of the city of Agadez. The water, which is more than 100 m under the surface, is extracted, treated and then transported to the city. Denys equipped the existing wells, built the pumping station with adjacent reservoir and a chlorine treatment plant, and constructed a 30 km long water transportation pipeline of cast-iron. Finally, a drinking water distribution grid (15 km of PVC pipes) was laid in the city of Agadez.

ANTWERP / BELGIUM

New technologies and insights are constantly resulting in the upgrade of water distribution practices around the world. In Antwerp, Belgium's biggest port town, Denys signed a long-term contract with the drinking water supply company Antwerpse Waterwerken (AWW) to modernize the distribution network, which supplies drinking water to more than half a million inhabitants. One of the first things to do was replace the oldest pipes, and then extend the network to streets and districts where there was no water supply. The second part of the contract was to replace lead pipes and connections with more healthy plastic materials, such as high density polyethylene (HDPE), in line with European guidelines. Denys updated the connections between the distribution network and the counters in each house. Several Denys teams were on the road every day bringing more than 60,000 households up to the newest water supply quality standards. Inevitably, streets, sidewalks and verges had to be dug up to uncover pipes and install new connections, so a project coordination cell continuously adapted the planning of the works to the demands of city life. We consulted project managers of other infrastructure works and minimized the interference of other street activities.

Even a water distribution system in a modern metropolis needs updating. Denys modernized 60,000 household connections in Antwerp.

Denys teams were on the road every day. Their aim: to keep the disruption to other street activities to a minimum.

YEMEN

On the track of Dynamism & Creativity

" Working safely and meticulously, even when against the clock, is a Denys trademark "

Mission accomplished

On the track of dynamism & creativity

The dynamism shown by countries in the Middle East gives sheer inspiration. It's a region in full transition; it's where people create, build and develop with passion. Many prestigious infrastructure projects are witness to this enthusiasm. But this is no blind expansion. Policymakers in the Middle East have a clear vision of their country's future. Innovation is more than just a buzz word: it really happens. That makes the Middle East a promising, but highly demanding, market. And it's that dynamic yet demanding character that fascinates Denys. Just like Middle Eastern policymakers, we have a long-term vision. We don't simply acquire the most deals, for the greatest profit, in the shortest period - and then move on. Instead, we want to create a continuing presence in our markets. We want to take our time to understand local needs and requirements. To build up contacts. To find the most appropriate solutions. That's how we have established an excellent reputation in the region. Step by step, Denys has become a byword for trust and creativity to the policymakers in Qatar, Abu Dhabi, Bahrain, Dubai, Saudi-Arabia and Yemen. We're flattered that they appreciate not only the quality of our workforce, but also the expertise and versatility of each individual on site. Every one of them making these ambitious projects come true.

Emergency repairs on Yemen pipeline

Barely two weeks after the emergency call was made, Denys sent an eleven-member-strong intervention team to Yemen. Their mission: to repair a strategic pipeline. Their priorities: safety, quality and timing. In less than two days, the pipeline was ready for use again. Mission accomplished.

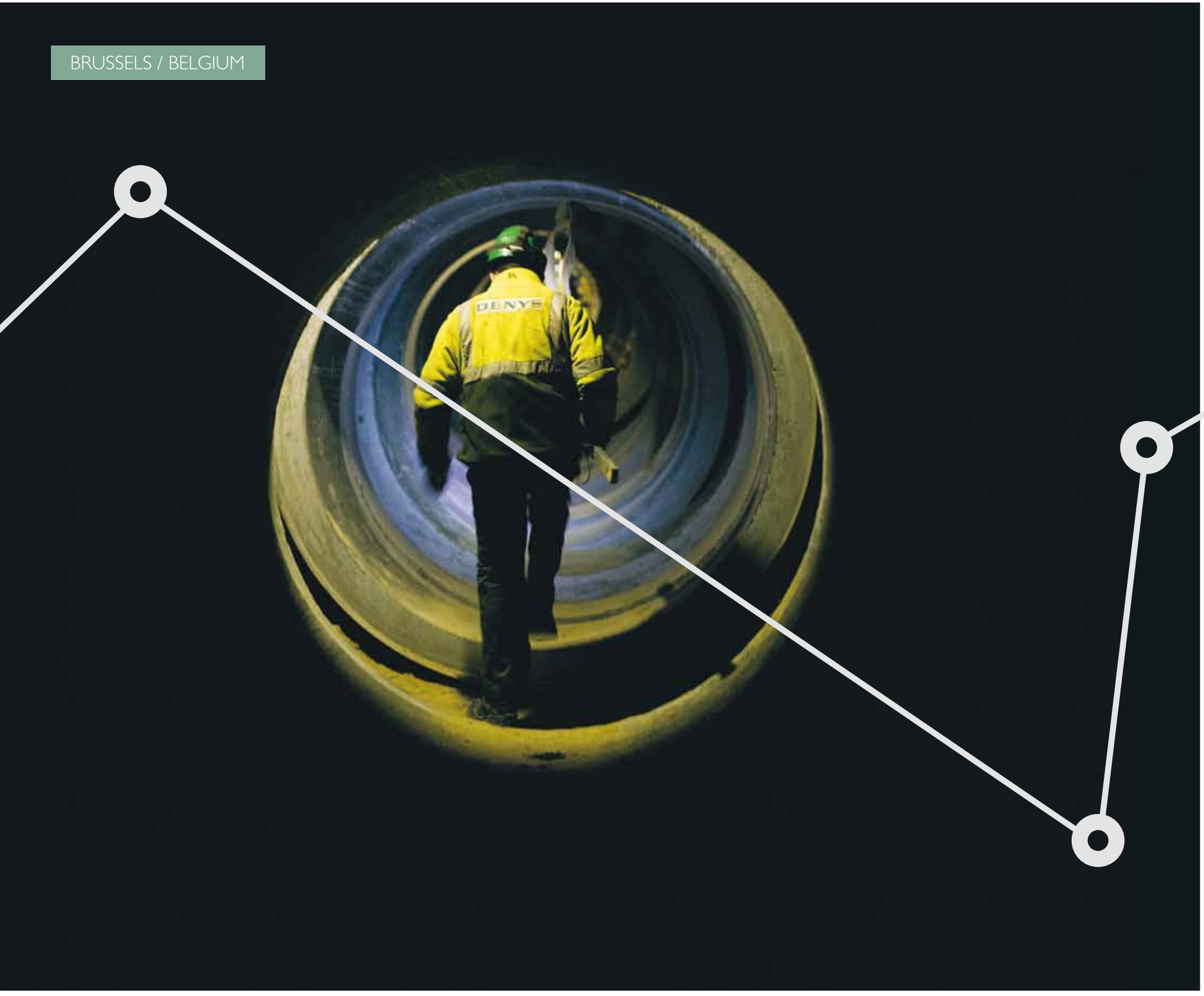
Our team worked with feverish energy to repair the damaged LNG pipeline in Yemen.

Double check

The pipeline in Yemen, carrying natural gas to the Liquid Natural Gas (LNG) plant at Balhaf, was subject to an act of sabotage. Luckily, there were no injuries - the pipeline route passes mainly through deserts and thinly populated regions - but there was considerable damage to the pipeline. Despite this, the pipeline remained in operation, although at a reduced pressure. Shortly afterwards, operator Yemen LNG asked Denys if it could intervene at short notice to repair this pipeline but maintain the gas atmosphere at the same time. Denys assessed the risks. After guaranteeing the security and safety of its people, sent over its specialized equipment by airplane and, just one week later, deployed its intervention team.

Doubly sure

In view of the risks involved, neither Denys nor Yemen LNG left anything to chance. Safety, timing and flawless performance were constantly at the forefront of our team members' minds. Under military escort, the combined team worked with great concentration and professionalism to fix the pipeline in the shortest timeframe possible. Our team was away for eleven days, including four days of travelling. The actual repair took less than two days, thus limiting production losses for Yemen LNG to a minimum. A strong illustration of both the client and Denys making the right decisions.



Downtown in just a minute

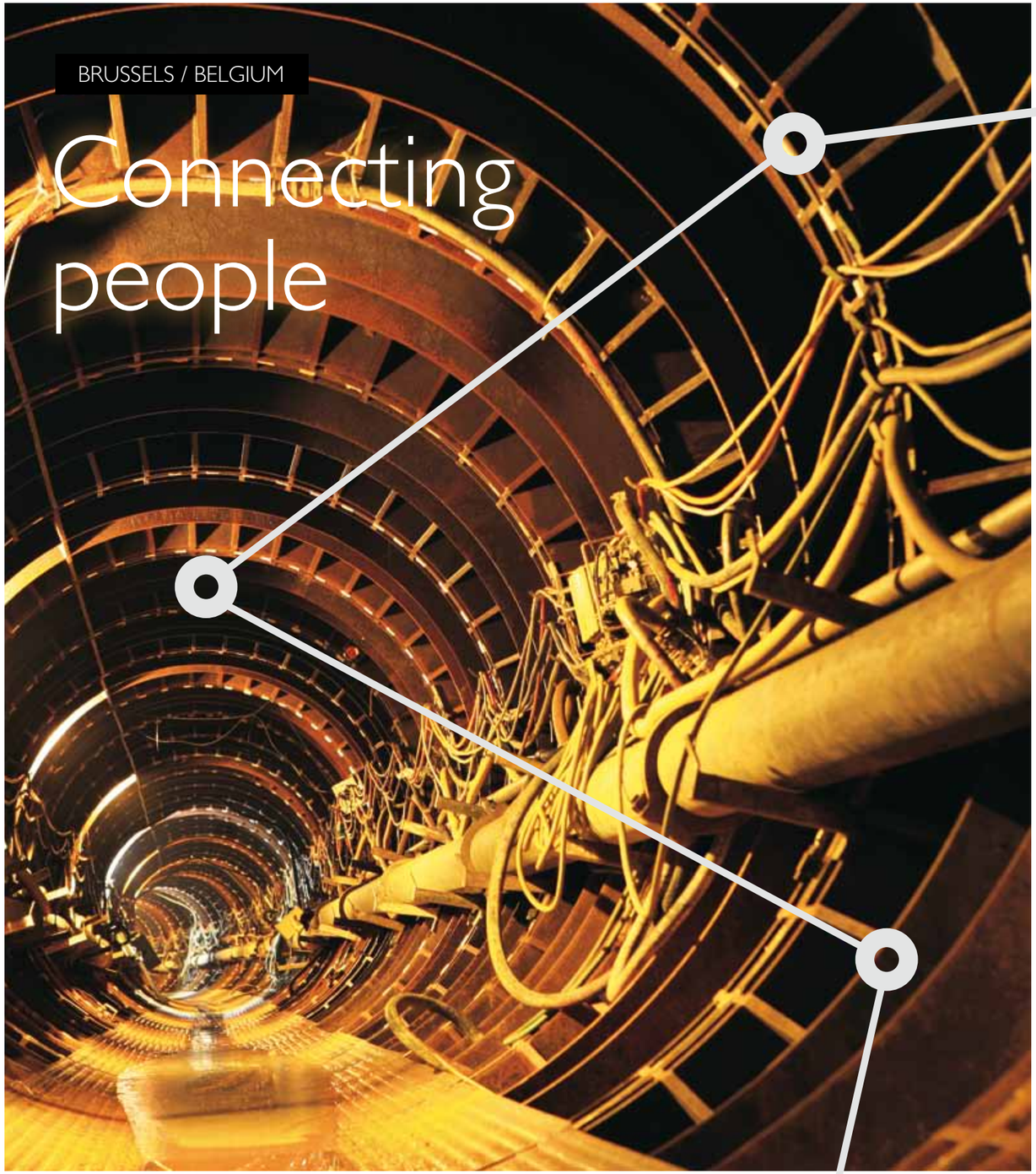
The twentieth century witnessed rapid urbanization around the world. Massive cities were built, some home to more than 10 million people. Globally, the proportion of urban population increased from a mere 13 percent in 1900 to a staggering 50 percent in 2005. And it's not going to stop there. Urbanization is expected to continue; 60 percent of the world's population - nearly 5 billion people - is expected to live in cities by 2030. Big cities are a symbol of economic, social and cultural growth.

At the same time, this concentration of human activities sets a challenge when it comes to mobility. Recent studies estimate the average speed of cars in European town centers to be 11 km per hour: that's even less than the 15 km per hour of horse-drawn carriages in Victorian times. And you never read about parking problems then...

Intelligent mobility is multimodal and satisfies the mobility requirements of individuals living a modern life: speed and accessibility. The latter requires a finely-meshed transportation grid, particularly in heavily built-up areas. Going underground is often the only solution.

Microtunnelling is Denys' specialty. Thanks to decades of expertise and know-how, we carry out the most ambitious of tunnelling projects. Fast moving underground, no disturbance aboveground.

In heavily populated areas, underground mobility is often the only way to reconcile social and ecological desires with investor concerns.



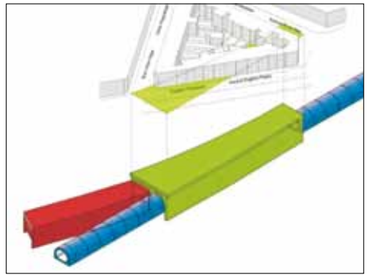
BRUSSELS / BELGIUM

Connecting people

The Regional Express Network (REN) in Brussels is a response to the growing problems of cars clogging the city's approach roads. The REN, comparable to the RER (Réseau Express Régional) in Paris, is the missing link between the city center's frequent-stop underground system and its long-distance intercity rail lines. As a rapid transit system, it will offer fast connections and increased frequency within 30 km of Brussels, covering an area inhabited by 2.5 million people.

Better connection for the European Quarter

The REN's light rail transit system is a cross between the heavy rail and metro systems. Light rail trains will connect existing public transport stations in Brussels. For some of those connections, new tracks are being built underground. The Schuman-Josaphat tunnel of 1.6 km is one of the most important. The tunnel connects two major railway tracks and improves the connection between the European Quarter (host to most of the official seats of the European institutions) and Brussels Airport.



Pipe jacking for large railway tunnel

Denys drew on all its skills to construct this tunnel. We used pipe jacking to construct two horizontal, parallel pipes of 3 meters in diameter. Not the usual concrete pipes, but specially designed steel pipes. One section of the pair of pipes was 107 meters long, another section 275 meters. We used special jointers between the pipe sections to achieve relatively sharp bends, which were needed to carefully by-pass the many obstructions.

Then, using microtunnelling, we installed 140 cross pipes, each 10 meters long and 2.10 meters in diameter. These connected the two larger pipes, forming the roof of the future railway tunnel. To accomplish those cross pipes, we had to design and fabricate special jacking-frames and a hydraulic slurry system. From within the two larger pipes, the vertical sidewall trenches for the tunnel were dug. To finally reveal the final train tunnel, the earth between the roof and the sidewalls will be excavated.

We bore smoothly through hard rock and soft earth, and any deposits in between, thanks to our wide variety of tunnel boring machines (slurry shields, mix shields, mechanical front support, earth pressure balance shields, etc.)

Improve existing railway infrastructure

Most REN trains will not run through the new tunnels, but on existing tracks instead. However, to enhance the capacity of the existing infrastructure, the number of tracks needs to be doubled (from two to four). Denys was asked to prepare the work for enlarging a trunk line between the city center and a neighbouring suburb by, for instance, broadening tunnels and adapting bridge underpasses.

Feverish activity in the city underground

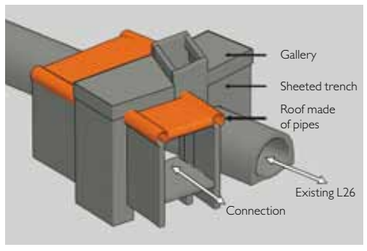
Tunnelling in a densely residential area like the European Quarter in Brussels requires innovative creativity and scrupulous professionalism. Denys employed the most enhanced technologies for the Schuman-Josaphat tunnel and even developed specific systems and techniques to meet a few particular challenges of the project.

No disturbance to busy city life

24x7 in the underground

Brussels, like all cities, is a hive of activity. Yet the business people, city dwellers, tourists and partygoers never noticed the intense activity going on underground. Denys pulled out all the stops to minimize the disturbance to city life aboveground. We adapted our working calendars to guarantee continual work 24 hours a day, 7 days a week. We used custom-made portal cranes that enable working in an underground gallery, and we installed the majority of our surface-installations on a site 1.6 km from the launch shaft.

Forwards, not backwards



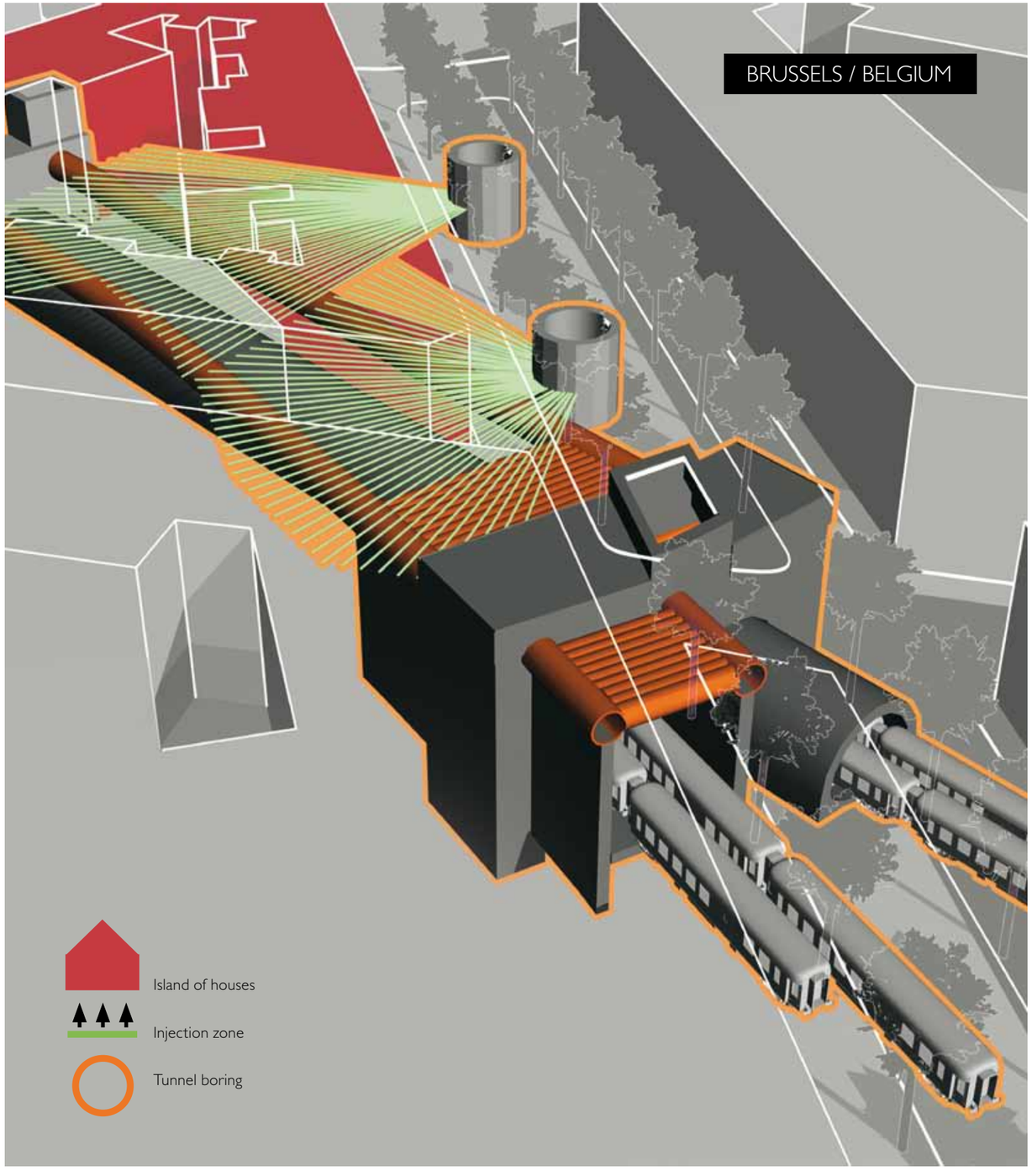
Pipe jacking without target shaft

Another complexity was the fact that it was impossible to dig a target shaft at the end of the two tunnels to bring the pipe jacking machine to the surface again. Denys developed and trialed an innovative technique to withdraw the pipe jacking machine through the newly dug tunnel, leaving the cutting shield of the machine underground. Denys has used this new technique several times with success.

Height of three men under the cellars

Compensation grouting stabilizes entire district

The railway tunnel is located barely 5 meters under the cellars of the dwellings above. So Denys applied the compensation grouting technique to secure the stability of the houses above ground during the work. This technique uses sensors to automatically register in real time the slightest downward movement of a house. Every time an alert is made, the ground is 'pumped' back up by injecting grout locally and precisely via a sophisticated horizontal network of injection pipes at 2.5 meters under the cellars.



DENYS OFFICES

Never say “can’t”

Where **dreams** merge, buildings rise up.
The client has a **vision**, the architect an **idea**, the authorities a policy...
and the contractor makes it a **reality**.

Seeing those dreams become a reality is inspiring. New construction capabilities and innovative building techniques mean the construction industry can make even the most fanciful of dreams come true. The impossible becomes possible.

And that is our vision at Denys. To serve a pioneering role. As a multi-specialist, we are well-placed to do just that. We apply in-house expertise to all the relevant disciplines: geology, materials, building techniques, restoration techniques and regulation, to name but a few.

Those disciplines do not exist in isolation; we bring them together into one harmonious team. That allows us to constantly exchange ideas and opportunities. We don’t need to fuse our team with a dozen subcontracting partners. We can take on your project in its entirety.

That’s why we take on the challenges that make other contractors hesitate. That’s why we see opportunities, and others see stumbling-blocks. When others say “no, we can’t”, we say “yes, we can”.

The penthouse refectory with roof garden provides the Denys team with welcome respite from daily work demands.

Comfortable to live and work in, aesthetically pleasing, sensitive to the environment, friendly to our planet... Modern man imposes great demands on his buildings. Not to mention the cost and time restrictions to realize it all. So it's good to know that Denys is always on schedule and within budget. A boost to the life sciences industry.

A boost to the life sciences industry

Ghent is a primary breeding ground for life sciences and biotechnology in Europe. This fast-growing field demands highly specialized infrastructure and services. Despite this, it took Denys just 16 months to construct a dedicated service centre that answers all the specific needs of this innovative industry: more than 12,500 m² of laboratories, offices and shared services rooms. The building used a modular concept: ten units and five floors connected with technical bridges and surrounding a central green atrium, leaving the ability and flexibility to meet the needs of its next users.

The impressive transparent façade in punched aluminum, a nod to the highly innovative activities in the 'Bio Accelerator Building', was a technical tour de force.

DENYS OFFICES

Meeting the needs of the people & the planet

Green is our color

In that same heart of innovation - Ghent - the new Denys offices are rising. The focus here is on sustainability and comfort. Sustainability starts with preserving as many of the existing elements as possible and integrating them into the new building. That's exactly what the design of Crepain Binst Architects does: respecting the classic architecture and green surroundings, and combining them with fresh ideas of space and light. We are committed to the green cause when it comes to buildings: eco-friendly materials, extensive heat and acoustic insulation, high-efficiency heating, reflective glazing, radiant ceiling cooling, and many other innovative techniques. A roof garden for relaxing is the building's crowing green glory.

The well thought-out design, materials choices and techniques make the new Denys offices a sustainable and comfortable place to work.

VAN ORLEY BUSINESS CENTER

Gathering in ‘Beaux Arts’ style

1910 A.D.: stained-glass windows, massive parquet floors, marble mantelpieces, and wrought iron balustrades.
2010 A.D.: individual room-controlled HVAC, fast internet and data communications throughout the entire building, and the highest safety and security standards. The works of Adrien Blomme, renowned ‘Beaux Arts’ architect, and Denys, creative construction group, come together in the Van Orley house in Brussels.

Restored to the smallest detail

Beaux Arts architecture is characterized by sculpted decorations along modern conservative lines, and employs Baroque and Rococo formulas with the finish and realism of Impressionism. It’s an ideal setting for Denys to exhibit its craftsmanship in fine renovation techniques. We restored the building to its original splendor, from the cabinet work and parquet floors, the marble mantelpieces and ornaments in stucco, to the façade with its ornamental balustrades. Adrien Blomme, if alive, would be delighted.

Modern office

Employees are delighted, too, to be working in such a splendid building. The house, initially a residential building, has been transformed into the most modern of offices. High-efficient radiators and fan coil units, individually-controlled dynamic heat and cooling, flat screens and data communication infrastructure... all the comfort a modern employee desires. The building is a showcase for the ability of Denys to integrate cutting-edge technology into a charismatic Beaux Arts house.

The elevator brings you not only up and down the building but also back and forth between the beauty of hundred years ago and the safety of today.

FLUXYS

Crossing borders

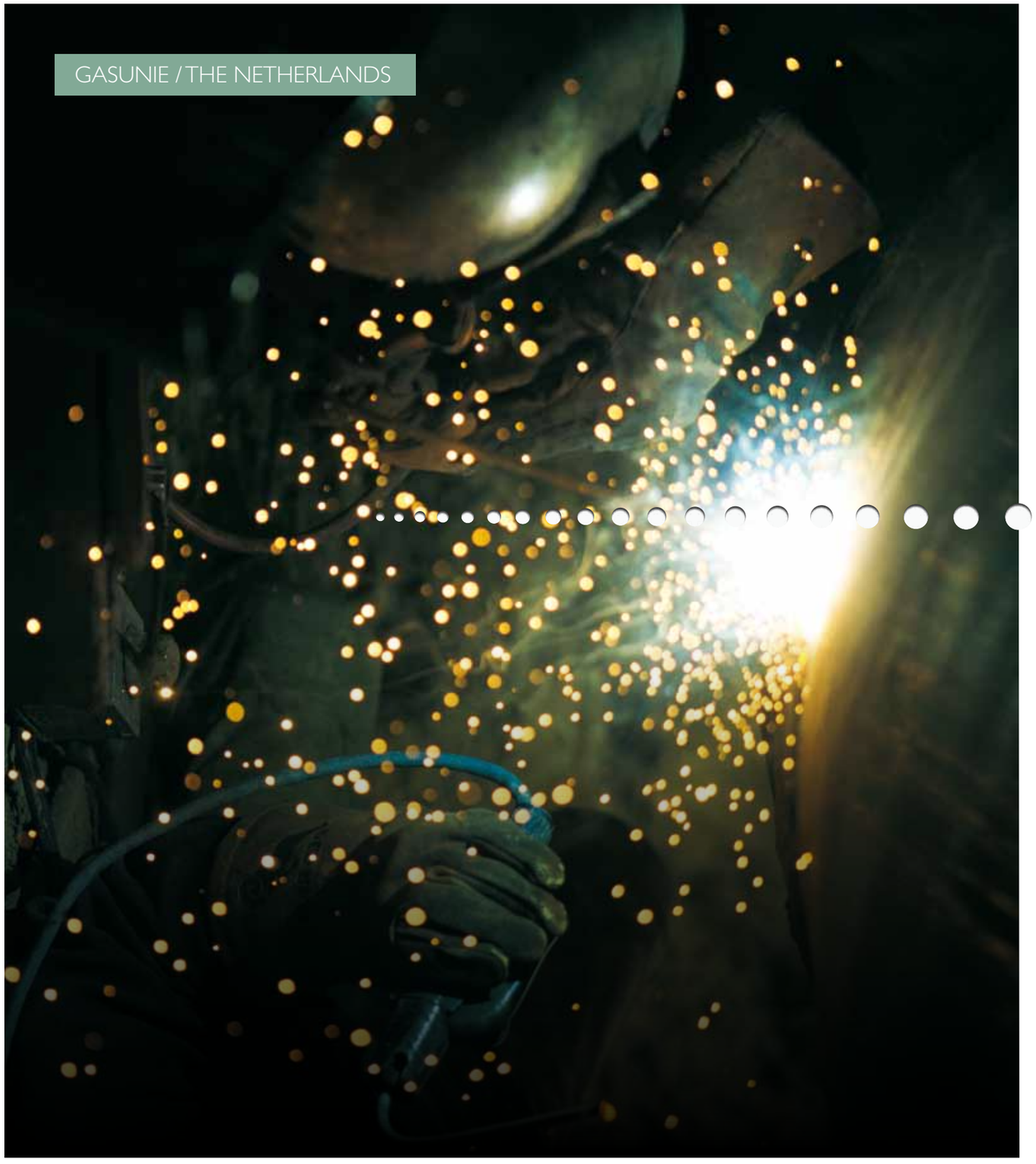
Crossing borders

If the economy is the beating heart of our industrialized world, then the oil and gas pipelines are the arteries and vessels. When the economy beats faster, demand for new pipelines rises. But when recession hits, projects are blocked and investments are cut.

An outstanding pipeline contractor knows how to combine special skills and advanced techniques with a streamlined and punctual organization.

So, a contractor that wants to play a leading role in this challenging and unpredictable industry needs to be flexible. Flexible to time demands: capacity employed today may have to be doubled the following month, or reduced by half. Flexible to regional demands: pipeline networks inevitably cross borders; decisions in one country may have repercussions in the next; and while one region may be consolidating its infrastructure, the other may be planning new investments. Flexible to project demands: a contractor that does not master the whole range of state-of-the-art pipeline construction technology is doomed to fail at the first of a long line of technical hurdles.

Pipeline construction has been a core business for Denys for almost a century now, and we've been involved in the major pipeline networks for oil, natural gas and water across Europe. The rest of the world is now catching up. Our clients value our use of the latest technologies, as well as our local presence, staff mobility and equipment availability. Not to mention our enthusiasm for ensuring a strong economic heart beat.



Squaring up to a gas roundabout

Reliable gas supply in Northwest Europe

Gasunie, the natural gas infrastructure and transportation company in the Netherlands, is carrying out an ambitious project: laying 300 km of large pipelines with a diameter of 1,200 mm to create a gas roundabout. It's a network that will serve as the core of gas transport in Northwest Europe, so network reliability is essential. Denys installed some of the strategic pipeline connections.

Our multi-specialized team and their dedicated pipeline equipment is adapted to the most demanding of site conditions.

Ambitious projects require holistic solutions

To say the project was ambitious is not an overstatement: the pipeline between Wijngaarden and Ossendrecht has a length of 75 km and a nominal diameter of 1,200 mm (ND 1200). Such large diameters over such long distances are right up our alley.
The construction required a lot of specialized trenchless crossing techniques, such as micro-tunnelling, pipe ramming and auger boring, and horizontal directional drilling. Denys has all of those competencies in house. Our dedicated pipeline equipment was also put to use: bending machines, pipe layers, welding tractors for both manual and automatic welding, GPS controlled excavators, and much more. Denys' holistic approach and adaptable, multi-specialized team - one day we had 50 people on site, the next morning 400 - again proved a winning combination.

In the mud, but solid as a rock

Another part of the gas roundabout, between Borgsweer and Midwolda, had to be constructed in a region known for its poor ground conditions. The very soft ground, peat and plastic clay, combined with a high water table, made this a very challenging job. Fortunately, Denys has extensive experience in laying pipelines in all types of soil. This knowledge served us well during the preparation of the project - establishing a time schedule and detailed method statement - and during the execution of the project. In the worst zone, where the subsoil was comparable to mud, we installed 2 km of sheet piles and two parallel temporary roads. Nevertheless, we had to keep our 70-ton cranes more than 12 meters away from the trench, instead of the usual 7 meters. Thanks to excellent collaboration with Gasunie and other contractors, we finished this pipeline safely, on time and on budget.

Under high pressure

Strategic gas transport in urbanized area

Fluxys, the operator of the natural gas transmission system in Belgium, is installing a second major high pressure gas pipeline from the west to the east of the country. An extremely tight schedule in the most challenging circumstances characterizes this particular project. Denys was chosen to complete two of the three pipeline contracts. Notwithstanding the high productivity needed to complete the project in time, we never relax our safety and quality standards.

Weaving a way through

The project is packed with challenges: a large diameter (1000 mm), a long distance (the complete trajectory measures 180 km) and, most significant of all, many obstacles along the way. Belgium is one of the most densely populated areas in the world, so a pipeline of that length is a sequence of short pipe strings and innumerable crossings. Belgium also has a varied geology: alternating layers of clay, sand, limestone and mudstone, often combined with a high water table. If that's not complex enough, the new pipeline is parallel to that of a high pressure pipeline already in operation - actually the country's most important gas transport system. Due to a lack of open space, it was impossible to stay on the same side of that pipeline, so we have to cross it more than 30 times in the first 85 km.

The extremely short deadline encouraged us to enforce even higher Safety, Health, Environment and Quality standards.

Safety first

The complexity and extremely short deadline have encouraged Denys management to enforce even higher Safety, Health, Environment and Quality standards and controls. A dedicated QSHE team, together with the project management, takes care of this. All parties involved in the project are more than satisfied with the 'safety first' approach.

On a cruise to Tuscany

Connecting LNG terminal with the continent

Livorno, a port on the western edge of Tuscany, welcomes the passengers of many cruise ships. But it's not only tourists that go ashore. Gas also comes ashore, from an LNG terminal on Sardinia, some 300 km under the Tyrrhenian Sea. Using pipe jacking, Denys constructed a casing pipe for the gas pipeline under the mouth of a branch of the river Arno.

All hands on deck

The casing pipe is 6 km in length and runs under a tributary, the Scolmatore. Six shafts were excavated in the canal, from where we dug the tunnels. Two pipe-jackings of 2 meters in diameter had a record length of 1,200 meters. Thanks to our extensive range of equipment and flexible staff capacity, we were able to operate several pipe jacking machines at the same time. This meant we completed the project in less than ten months.

Runaway success of a fledging airport

Kerosene distribution network

We completed the kerosene airplane fuelling network without disrupting the many other activities at the busy airport.

The Airport of Liège-Bierset, Belgium, is a small but fast-growing airport in Belgium, used by civilians and military alike. Denys constructed a hydrant refuelling system, replacing the classic fuelling by truck, and had to reckon with the changing priorities and other infrastructure works of an airport in expansion.

Flexible project organization

A kerosene pipeline with tapping points (hydrants) at the airplanes' parking places, supplied by a double pipeline of 6 km, with underground valve stations, low and high points (to drain and to vent) and the entire Electrical & Instrumentation (E&I) implementation, including the complete procurement package. This was the initial and final description of the project. But between the start and completion of the project, other major infrastructure works took priority over our works in order to cope with the unexpected success of the airport. As usual, Denys showed its flexibility by cutting the project into pieces and by adapting its time schedule to complete the works without hindering any other activity at the airport. The result is a highly satisfied client who won't hesitate to ask us back if a further expansion in capacity is needed.

Ultramodern welding, ultrasonic testing

Higher quality control, faster result

For the first time in Belgium, Denys was allowed to use the technique of automatic welding. It's much faster than manual welding and requires a smaller number of qualified welders. The welds were inspected using the Automatic Ultrasonic Testing (AUT) technique, mainly Phased Array (PA-AUT), which was also a first in Belgium.
The combination of the automatic welding system and the non-destructive testing technique guarantees a quality of weld never achieved before on such a project.

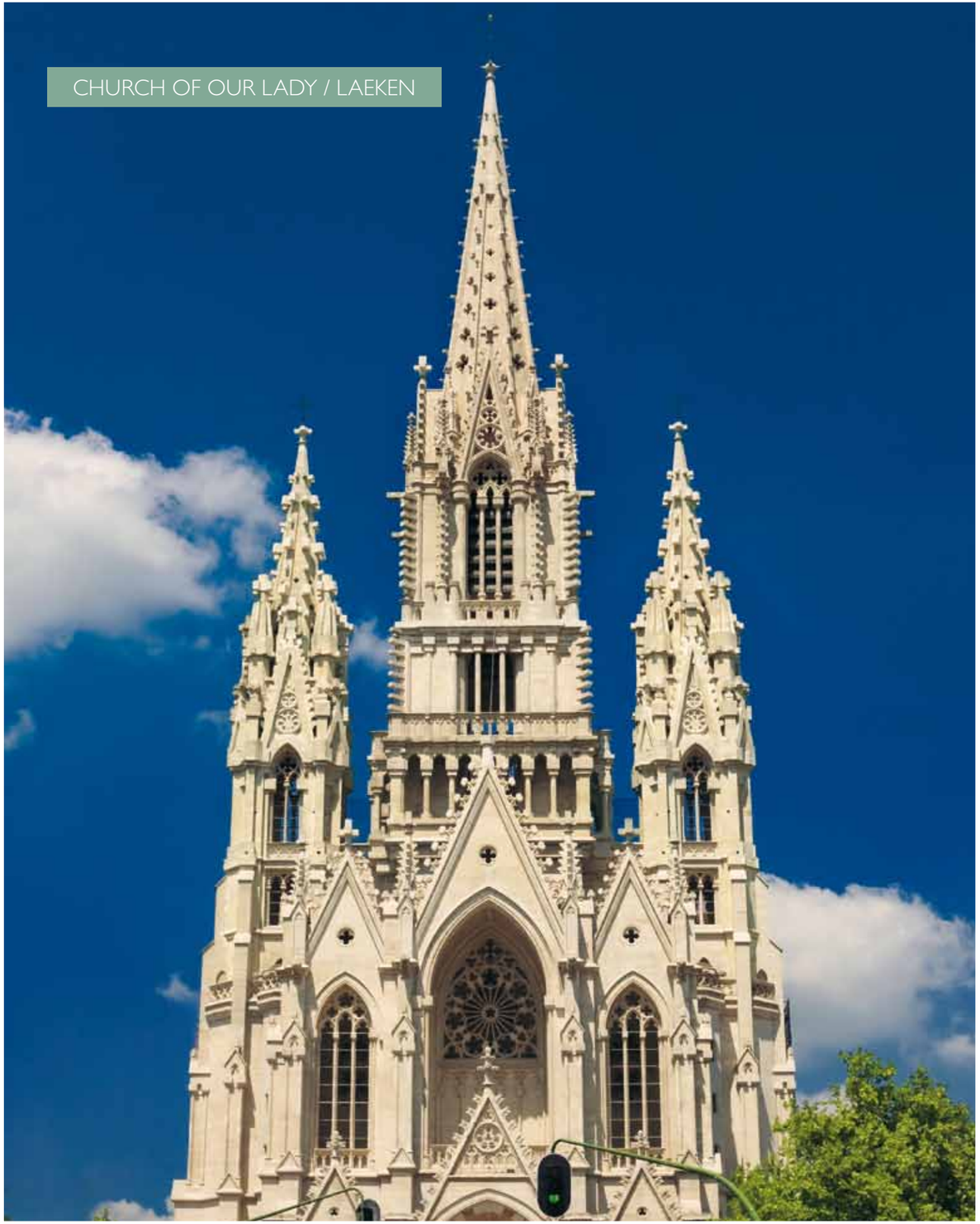
CHURCH OF OUR LADY / LAEKEN

RELEASE THE SOULS OF OUR ANCESTORS

Preserving our heritage gives meaning to today and hope for tomorrow. It is not about nostalgia or freezing time. Rather, it is about improving the present and creating a future. By blending elements of our past with features of our modern lives, we turn historical value into current economical value. We find new destinies for old treasures. That is what heritage management is all about. That sense of uniting the old with the new is an essential requirement for restoration works. That is what makes restoration a fascinating business. Finding the right balance between the traditional skills of a master craftsman and the advanced techniques of an expert builder. Being familiar with materials and methods of the past, and knowledgeable about techniques and systems of the present.

At Denys, we create a bridge between the traditional and the modern. We integrate past values with modern principles. Not just to give us pleasure or a sense of pride. But to install a sense of stability, durability and security. That requires from our workers not only respect for the historical character of a building but also regard for its modern role and needs.

Dive into the past. Walk in the footsteps of your ancestors. And discover your future.



The grandeur of a façade

To restore historical façades is to reconcile the past with the future. It's about safeguarding the fragility of traditional materials with modern construction techniques. It's about securing the majesty of an ancient edifice with the newest stabilization techniques. And it's about performing a complex renovation with minimum inconvenience to the immediate environment.

The discipline of the fine arts

Denys restored the side wall of the Church of Our Lady of Laeken and the classified façades of the Royal Museum of Fine Arts in Brussels, of which the oldest parts date back to 1760. Restoring façades is a fine art because it requires a broad pallet of skills at a very high level: different cleaning techniques, relief work reconstruction with mineral mortar, plastering and painting, replacing glazing and cabinetwork, sheeting cornices with lead, and much more. At Denys, we master all those techniques in-house. That's how we are able to meet strict deadlines and high quality requirements.

Craftsman's patience, high-tech precision

The most fragile pieces of an historic façade are the most vulnerable to the ravages of time. That includes fine sculptures, pinnacles, finials, gargoyles, and other ornaments. In our workshop, we operate a fully-automated stone robot that meticulously prepares the work of our sculptors. A plaster cast of the original piece is scanned. The robot then uploads the 3D digital image and starts carving day and night, steadily revealing the piece in its original magnificence.

A 3D stone robot carves an exact replica of the historical piece. A sculptor touches up.

We restored more than 10,000 m² of the side wall but, thanks to the extra stability measures we took during restoration, the Church of Our Lady of Laeken stayed in use during the entire process.

GRAVENSTEEN / GHENT

Lasting another thousand years

The stability of a fortress

The city of Ghent in Belgium is restoring the pride of its old castle. Gravensteen dates back to the Middle Ages, so any restoration requires specialized knowledge. Denys has been involved since the beginning of the project. One of our latest achievements is consolidating and stabilizing the surrounding walls with special cement injections and jet grouting techniques.

Techniques that have existed for just a few years support the robustness of ancient craftsmanship.

Our broad range of in-house restoration skills means not relying on third parties.

Let's adapt to change

"It's not the strongest of the species that survives, nor the most intelligent. It is the most adaptable to change." Charles Darwin could have been referring to restorers. Restoration works at Denys is about adapting on a continuous basis: adapting to changed plans, to modern requirements, to new destinies.

Survival of the fastest

Restoration of exhibition hall

They are making history in the Museum of Natural Sciences in Brussels. A visit to their new "Gallery of Evolution" lets you travel back an amazing 3.8 billion years. Much less time was needed to fully adapt the hall to the new exhibition concept. Denys did the job in less than a year, ensuring the gallery was ready for the festive commemoration of the 200th anniversary of Charles Darwin's birth.
It took just one year to replace supporting steel structures, concrete plates, cabinet work, reflective glazing, spherical volumes, stairs, and much more.

The ultimate camouflage

Disguising HVAC and security in an historic setting

The exhibition halls of BOZAR, the Centre of Fine Arts in Brussels, are adorned with brilliant skylights, warm parquet floors and decorations in marble and stucco. All have been recently restored by Denys. But as a popular museum, it has also to meet requirements of a modern building. Denys' restorers used their expertise and creativity to hide HVAC, fire safety and security alarms from the gaze of the public. They also used modern carpentry techniques and zinc coverings to restore the original metal rafters.

From a golden era

Modern banking in historical building

The building of BNP Paribas-Fortis in Antwerp, Belgium, has re-emerged in its original Rococo magnificence. Denys restored more than 21,200 m² of the building. Some of the rooms - such as the archives, the entrance hall, and the safe deposit room - have retained their original function. Other rooms have been converted to modern banking needs.
The lavatories, for example, have been turned into offices. If you enter the counter hall, don't forget to look up and admire the glass ceiling; we made by hand exact replicas of the vintage glass tiles.

BIERSET / BELGIUM

Reading the challenges, mastering the techniques

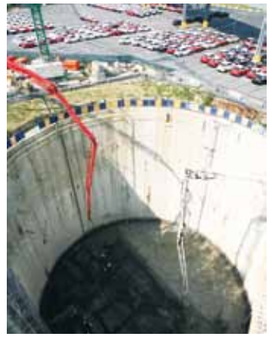
The Norwegian architectural historian Christian Norberg-Schulz reintroduced the concept of 'genius loci' in modern architecture. He stressed that architects should, first and foremost, grasp the essence of the construction site before starting to design. Without a deep understanding of the physical as well as the meta-physical qualities of the place, every architect is bound to fail.

At Denys, we think that the same goes for engineering, especially when it comes to foundations. Each site is different and each project brings its own specific challenges. Some challenges may be obvious, but be sure that some are hidden or difficult to uncover.

Our first duty is to read those challenges and fully understand the local situation before going any further.
The second duty is to find solutions that answer these challenges.
We may consider traditional or modern solutions, and established or ground-breaking methods. We believe in low-tech as well as high-tech. And we make an issue of mastering them all.

When time is crucial

Shotcrete sprayed by robots



This solution is perfect as an alternative for one-sided wall formwork.

The technique has been used at the 15,000 m³ stormwater basin next to the parking area of the Audi Vorst plant.

To cast large volumes of concrete in a short timeframe, Denys is increasingly using robot-manipulated shotcrete solutions. The technique was used recently in Vorst (Belgium) to accelerate the construction of a 15,000 m³ stormwater basin.

Hoses manipulated by robots on caterpillars

Shotcrete is normally applied by skilled workers who manually manipulate the hose for jetting the concrete. Bearing in mind the backward forces that the jetting induces on the worker, this technique is only possible for moderate volumes. However, Denys' special techniques experts have also mastered an automated shotcrete solution, where hoses are manipulated by robots standing on caterpillar trucks. This solution is perfect as an alternative for one-sided wall formwork.

15,000 m³ basin shored-up in just one month

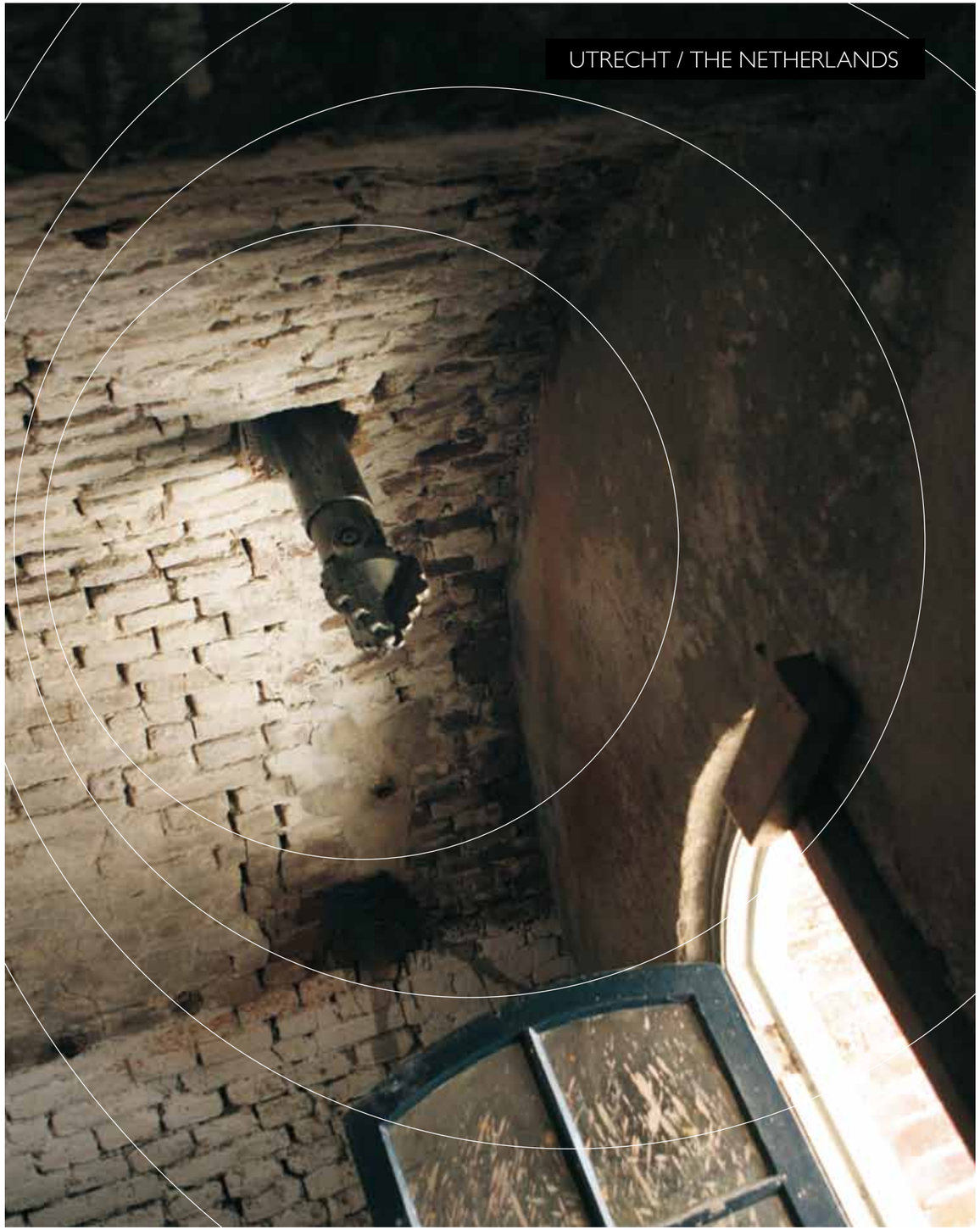
The technique was used recently during the construction of the 15,000 m³ stormwater basin next to the parking area of the Audi Vorst plant. The basin is about 25 meters deep and has a 32 meter diameter. Due to unexpected circumstances, the surrounding slurry walls had to be shored up on the inside, requiring large volumes of concrete to be cast. To avoid formworks, Denys proposed to apply shotcrete. Thanks to the use of robots, the work was completed in just one month, which was crucial for the project's continuation.

Jet Grouting reinforces medieval foundations

Restoring wharf-sides in the old town of Utrecht

Denys took care of the preparatory foundation works as well as the actual restoration. The whole operation was done using a small caterpillar truck, an ideal solution where there is little maneuvering space.

Drilling (from the street level) through the cellar space down to the foundation level.



A series of old wharf-sides in the medieval center of Utrecht (the Netherlands) needed to be restorated because they were showing cracks due to subsidence. Denys first reinforced the foundations by means of Jet Grouting, before carrying out the actual restoration work.

Medieval structure too weak

The wharf-sides, located near the famous Cathedral Tower (Domtoren) right in front of the Town Hall, run alongside the inner city canals for which Utrecht is well-known. The oldest one is built in the 13th century. The advent of 20th century traffic gradually increased the load on the original foundations, leading to subsidence. Investigations showed that cracks were developing recently in the wharf-sides' brickwork, so a restoration was due, and that was a job for Denys' restoration specialists.

One contractor for both jobs

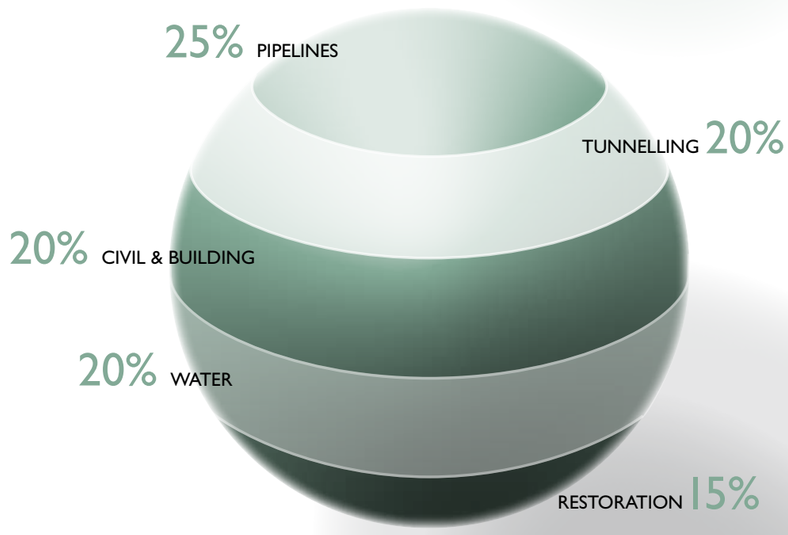
Of course, the foundations had to be improved first. Luckily, Denys could take care of this too. Their special techniques experts consolidated the ground to 6 meters below the actual foundation level onto the first sufficiently solid subsoil layer. They used Jet Grouting, a technique where grout is injected under high pressure (about 500 bars) into the soil through a thin shaft which is first drilled into the ground. After drilling, the head is pulled back with a constant rotation and upward speed while injecting the grout through two injection nozzles of about 2.6 millimeters. The whole operation can be done using a relatively small drill rig, an ideal solution where there is little maneuvering space and compliant with current stringent noise and pollution requirements.

Global Figures

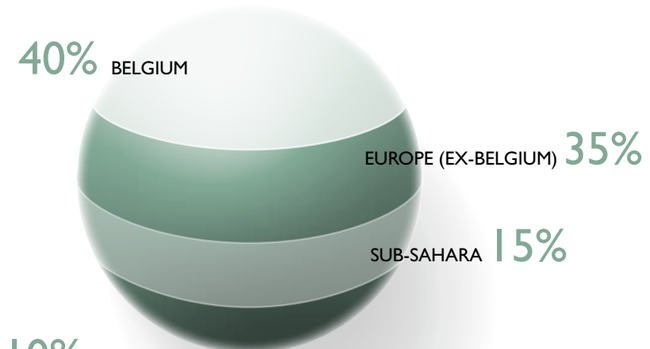
Rapid but organic growth ensures a company in perfect health.

Rivalry and ambition often overshadow the strive for quality in highly competitive markets such as construction. The opposite is true at Denys. Quality and performance have always been our drivers, and always will be. By carefully combining our strategies of diversification and global expansion with the desire for organic growth, we have increased our turnover fivefold in the last 10 years. That's fast growth on solid ground.

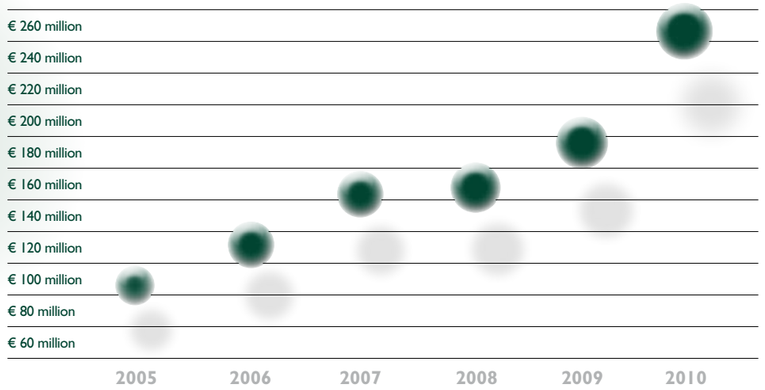
Sales turnover per activity:



Sales turnover per region:



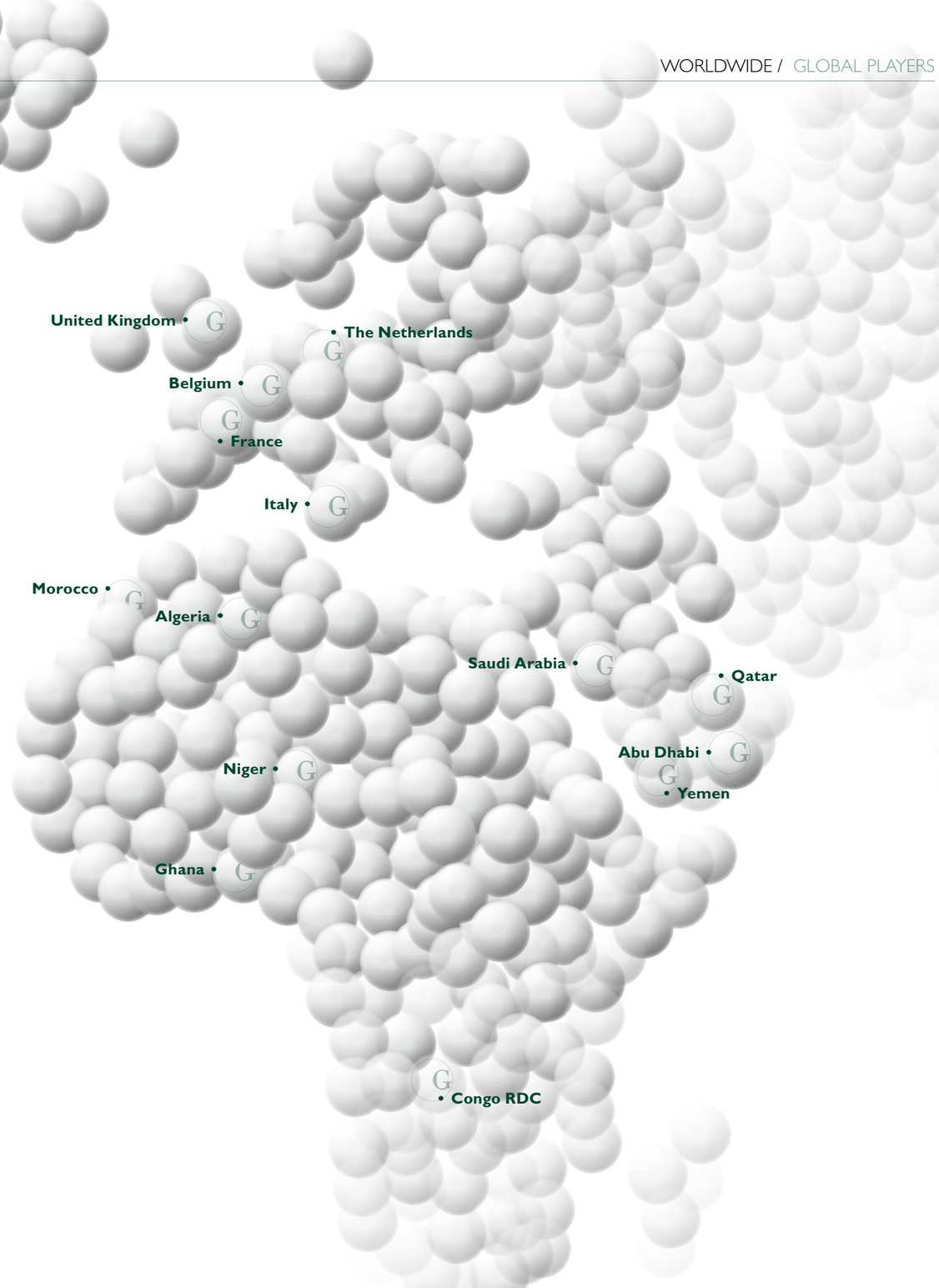
Growth in turnover of the Denys Group



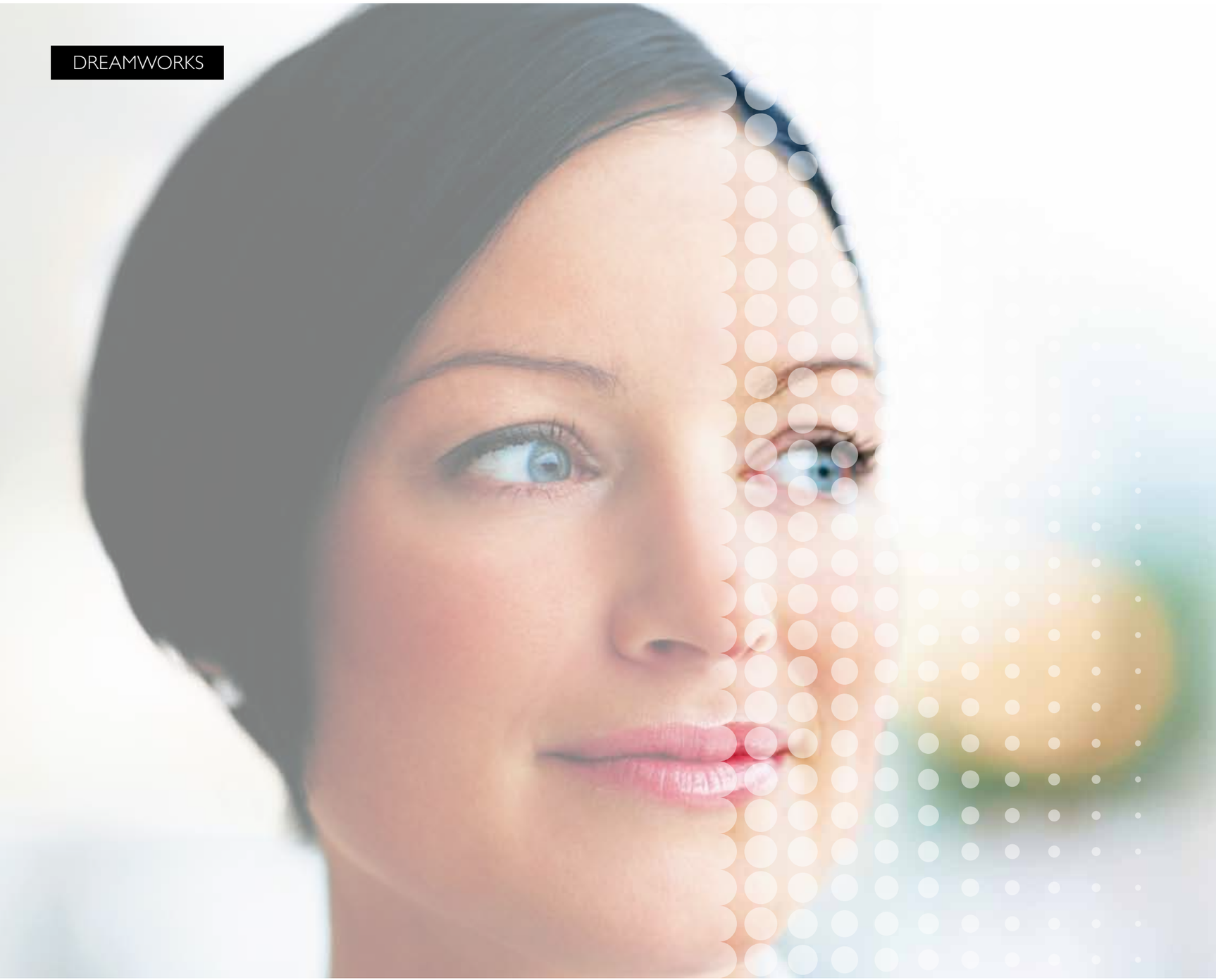
Global Players

Engaged in your and our future

Expansion by exporting our expertise around the world is a key strategy of ours. Not just reactively - by submitting public tenders - but also proactively - by identifying overlooked needs and finding funding and ambassadors for a project at our own risk. And we're always on-site. With our own people, our own equipment, and our own quality-driven approach. That's why we're not going to the farthest corners of the world at breakneck speed. After all, we construct in a real world, not a virtual one. And you can't e-mail a container, can you?



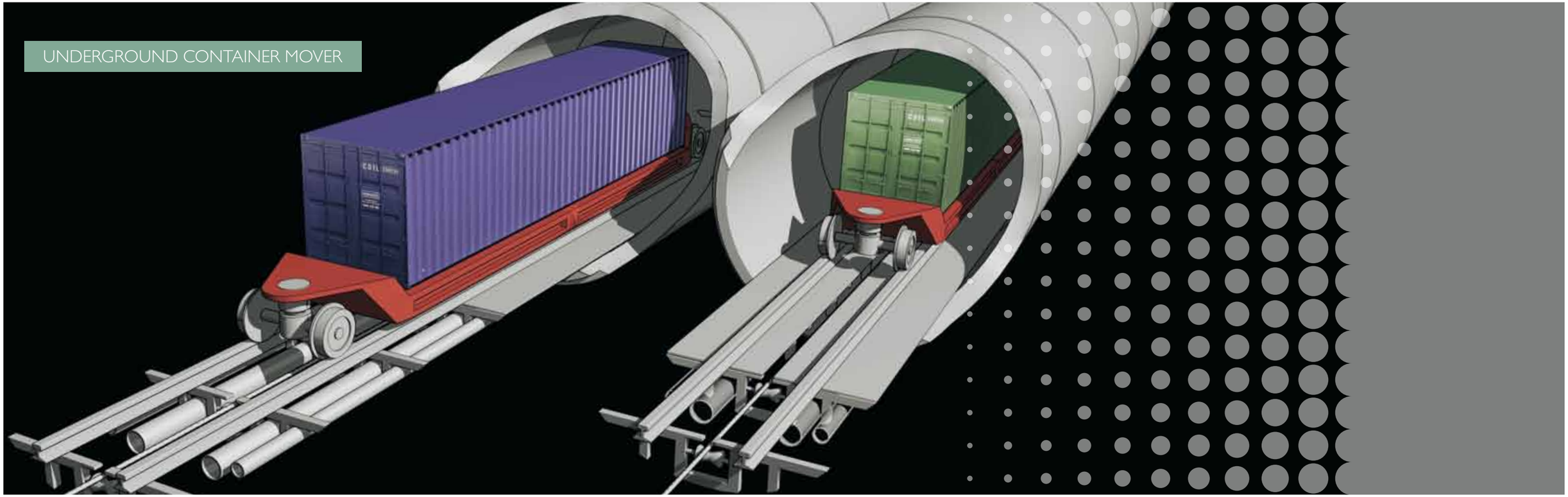
DREAMWORKS



A world without traffic jams

Underground containers are faster than trucks

If oil, water and gas can be transported through underground pipelines, then why not containers? It is cheaper, more reliable and more eco-friendly than aboveground transportation and a feasible alternative. But is it Utopia? Denys has conducted a real case study for the port of Antwerp, Belgium, and is now ready to make it a reality. Just give us one visionary policymaker and 50 months to achieve it.



Truck congestion

Traffic jams and bad roads mean that road infrastructure is groaning daily under the ever-growing weight of trucks. The costs to society far outweigh the benefits: traffic jams, harmful emissions, noise pollution… They can all be avoided if containers are transported through underground pipelines. Are we advocating a truck-free world? Not at all. But underground container transport could be a valuable alternative on a regional scale. It could, for instance, facilitate long distance transportation by delivering to and from ships and trains. That's exactly the idea behind the Underground Container Mover (UCM), a revolutionary concept formulated and developed by Denys.

Real case for important European port

Revolutionary, but not fictional. Denys has designed and developed a business case for Antwerp, an expanding European port that is becoming slowly choked by heavy traffic. The UCM would connect the docks with a shunting station up-country by means of a 21 km long electrically-driven conveyer belt between 22 and 28 meters under the ground. Computer-controlled vertical shafts would load and unload the continuously moving belt with standard marine containers.
The gain for Antwerp? More than 5,500 trucks kept off the roads.

One Underground Container Mover pipeline in Antwerp would keep 5,500 trucks off road.

Better for the environment, and faster

The advantages, both ecological and economic, are obvious. The electromotors don't emit harmful particles or noise. Overall energy efficiency is higher than any other aboveground transport system, thanks to its automatic steering, low speed and high motor efficiency.

Low speed? Didn't we say it was faster? It's the low speed that makes it faster… The belt moves continuously at a speed of about 7 km per hour. That guarantees a continuous stream of traffic: no delays because of traffic jams, bad weather, accidents or tired truck drivers. Accurately predictable delivery as well, and that saves storage costs for the receiver.

Politicians: dare to innovate!

What keeps the UCM from its success? Policymakers are hesitating to invest. It seems safer to keep investing in existing roads, even though we know that's simply postponing the inevitable - the collapse of the road system. The fairest debate - one that compares alternatives by looking at the total cost to society - is not always the easiest to communicate to the electorate. But then you need politicians with long-term vision. We welcome them with open arms.

Printed in 2011

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What about you? Hearing ‘impossible’ or dreaming ‘why not’?

DENYS

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