

# **NORDIC WATER**



**WORLD LEADING  
WATER TREATMENT  
TECHNOLOGY**





# A pioneer in water treatment tech

There are many different technologies for separating impurities from water. Most of them are based on methods such as sieving, sedimentation, filtration or biological treatment. A major share of technological development within the water treatment industry is directed at developing products and solutions that exploit and combine these treatment methods ever more effectively.

Among all the companies in the world that develop and sell equipment for purifying water, one stands out from the crowd with its pioneering and innovative approach. A Swedish company whose technical solutions lead the way for a whole industry: Nordic Water Products AB.

## **Inventions that set new standards**

The history of Nordic Water starts in 1962 with the founding of a privately owned Swedish research institute. The Axel Johnson Institute in Nynäshamn carried out research through the 1960s and 1970s within many areas, including water treatment.





# Technology for five decades

Over the years, our innovative employees have developed groundbreaking inventions such as the continuously self-cleaning DynaSand sand filter, the compact Lamella inclined plate settler, the DynaDisc rotating disc filter, the Meva self-cleaning screen and the hydrodynamically optimised Zickert bottom sludge scraper. Ideas and products that have revolutionised our industry and set new standards for water treatment.

## **A valued partner throughout the world**

Today, Nordic Water is a valued and much relied upon supplier of purification equipment to small and large water treatment plants, waste water treatment plants and industries in many countries. Our cutting-edge expertise means that customers can turn to us to obtain a comprehensive solution that meets regulatory requirements and provides good long-term economic performance.

This is why Nordic Water is the chosen collaboration partner for a long list of authorities, companies and water and wastewater consultants across the globe – from Svalbard in the north to Australia in the south.



*Experience Nordic Water's added value for yourself!*

# Original ideas that became the pioneers for a whole industry

*In a treatment plant, impurities are separated step by step, from the coarsest particles to the very finest. Nordic Water's holistic approach and expertise in the different treatment technologies mean that we can always offer the best solution for each individual stage of the treatment, combining equipment for a most efficient process.*

All of our products are energy-efficient, require minimal maintenance and have a very long lifetime. In addition, our solutions are modular, which means that they work just as well in small installations as in the very biggest. In the long run, the customer always wins when they choose an original product from Nordic Water.

## MEVA

by Nordic Water

**Meva** is Nordic Water's brand for mechanical separation equipment. The self-cleaning Meva Monoscreen and Meva Rotoscreen are solutions as effective as they are elegant for the first stage of the treatment, in which solids down to 1 mm are separated. A mat of impurities builds up on the screen, and is automatically fed out of the water without the need for washing water or brushes. The screenings are washed and then efficiently dewatered with the Meva Screw Wash Press and Meva Counter Pressure Screw.



## LAMELLA

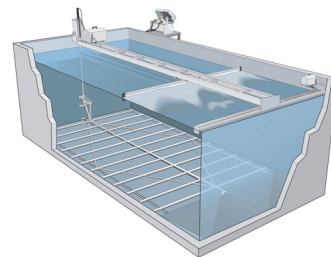
by Nordic Water

**Lamella** is the brand name for Nordic Water's plate settler. Lamella multiplies effectiveness in the space-demanding sedimentation stage, which provides a significant increase in the treatment plant's capacity. Lamella is available in several versions, from small, compact, freestanding units to large plate packs intended for sedimentation tanks.

## ZICKERT

by Nordic Water

**Zickert** is Nordic Water's product line of bottom sludge scrapers, surface scum scrapers and other products for sedimentation tanks. The Zickert scraper has a unique design which means that it effectively collects bottom sludge without causing turbulence and disturbing sedimentation. The system's flexible construction suits most tank types.



## DYNASAND

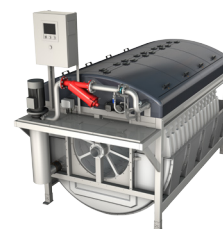
by Nordic Water

**DynaSand** is Nordic Water's flagship product. With the DynaSand filter, Nordic Water has transformed sand filtration into a continuously self-cleaning process that never requires backwashing. DynaSand also works perfectly in chemical and biological purification. The filter is supplied as a freestanding unit or as a module to be built into a tank. By connecting several modules in parallel, the filter capacity can be extended indefinitely.

## DYNADISC

by Nordic Water

**DynaDisc** is an extremely compact rotating disc filter from Nordic Water. The filter is constructed from rotating filter elements that provide effective separation of particles down to 10  $\mu$  on the smallest possible footprint. DynaDisc can be used to advantage within raw water treatment, tertiary treatment of wastewater and process water re-use. The filter is supplied as a freestanding unit or as a module to be built into a tank.







*The world's most northerly water treatment plant can be found on the island of Spitsbergen in the Norwegian Svalbard archipelago, 1350 km north of the Polar Circle.*

## A Swedish engineering company with a global presence

Nordic Water Products AB is a pure engineering company with water treatment as its business concept. Today, we have 130 employees, of whom 90 are based in Sweden. Many of our employees have worked in the industry for a long time, and constitute a unique experience bank regarding all possible applications within water treatment, in varying environments and in different places around the world.

### **We cover the whole chain, from research to sales**

Our core business includes research and development, project preparation and solution design, purchasing, production management and marketing. Sales, distribution, installation and service are carried out by our network of local resellers in fifty countries. In Norway, Germany, the Netherlands, Spain and China, we have our own sales companies.

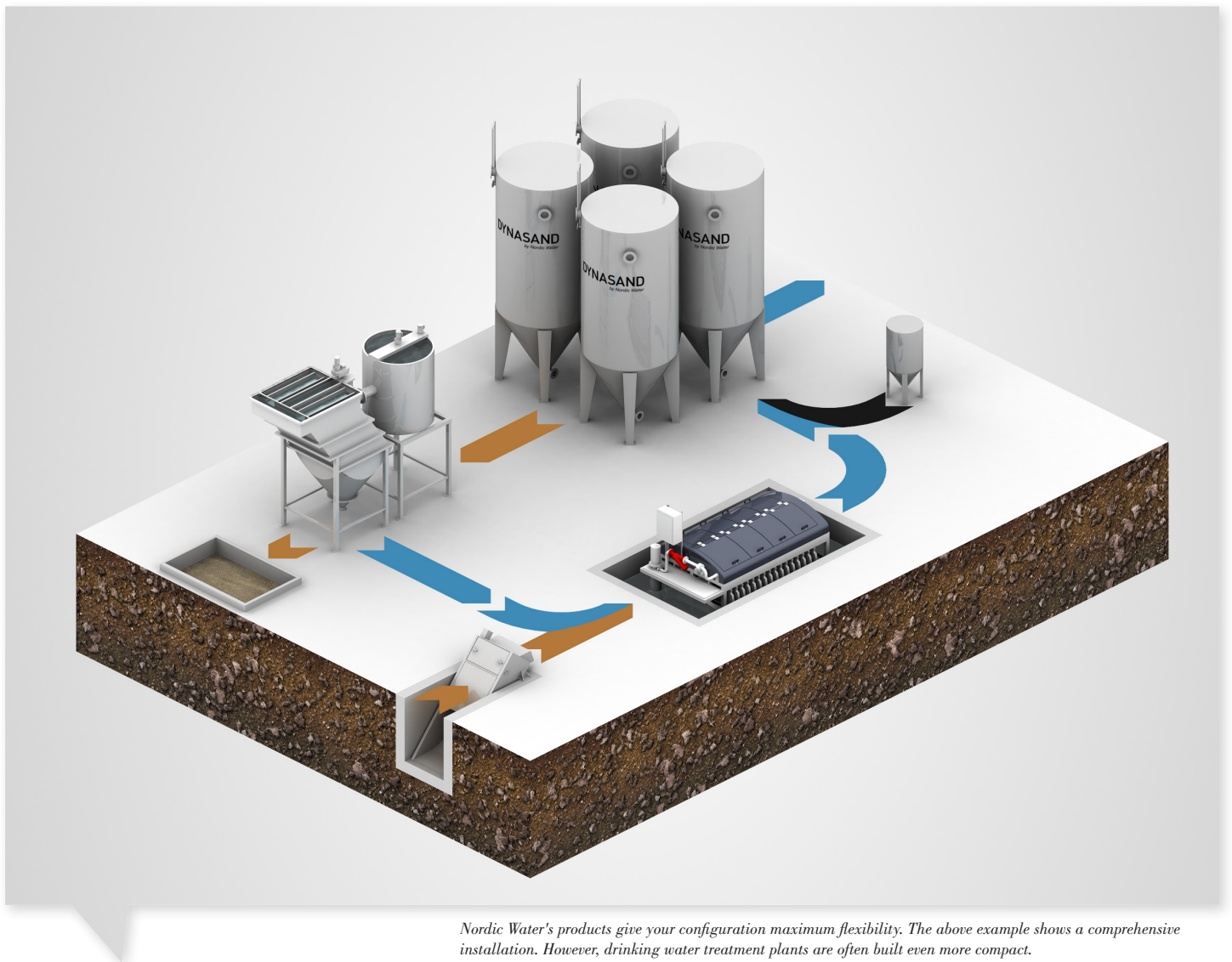
All manufacturing is carried out by selected subcontractors. Most components are manufactured in stainless steel, with the exception of certain products for special applications. Due to the size of our orders, we are one of few companies in the industry that can obtain deliveries of high-quality stainless steel direct from the major manufacturers in Scandinavia.

### **Good relationships lead to a good end result**

In addition to knowledge, experience and product quality, we believe absolutely that good relationships and a local presence are essential to successful projects. With our specialised organisation, we can ensure optimum solutions, high delivery quality and short lead times without unnecessary bureaucracy.

At Nordic Water, we see all parties in a project as collaboration partners. This applies both to consultants and clients and to our own resellers, suppliers and employees. We all work towards the same goal – to build a smoothly functioning treatment plant that fulfils the customer's requirements, both today and in the future.





*Nordic Water's products give your configuration maximum flexibility. The above example shows a comprehensive installation. However, drinking water treatment plants are often built even more compact.*

## Effective drinking water treatment with technology from Nordic Water

Water is essential for all human life. Ensuring access to clean, pleasant tasting drinking water is therefore one of the most important tasks for every society.

The production of drinking water is subject to strict regulatory requirements, and faces many other challenges too. Nordic Water offers effective solutions that fulfil today's requirements with a good margin, and which also prepare the ground for the future.

### **Handle raw water of varying quality**

The majority of all raw water comes from surface water sources in lakes and watercourses. Surface water is exposed more heavily than groundwater to various impurities from the air, plant and animal life, precipitation and the surrounding environment. This also means that the quality of the raw water can worsen rapidly, for example due to heavy rain and flooding.

A modern water treatment plant must therefore be able to handle varying raw water quality with a good and consistent end result. Nordic Water's product lines offer effective, versatile and reliable technology for separation, sedimentation, sludge treatment, sieving and filtration. In addition, with the DynaSand filter, we can deliver very compact water treatment plants that provide major savings in expensive floorspace.





This has the cumulative effect that we can help our customers to achieve both good drinking water quality and greater preparedness for extreme situations and peak loads.

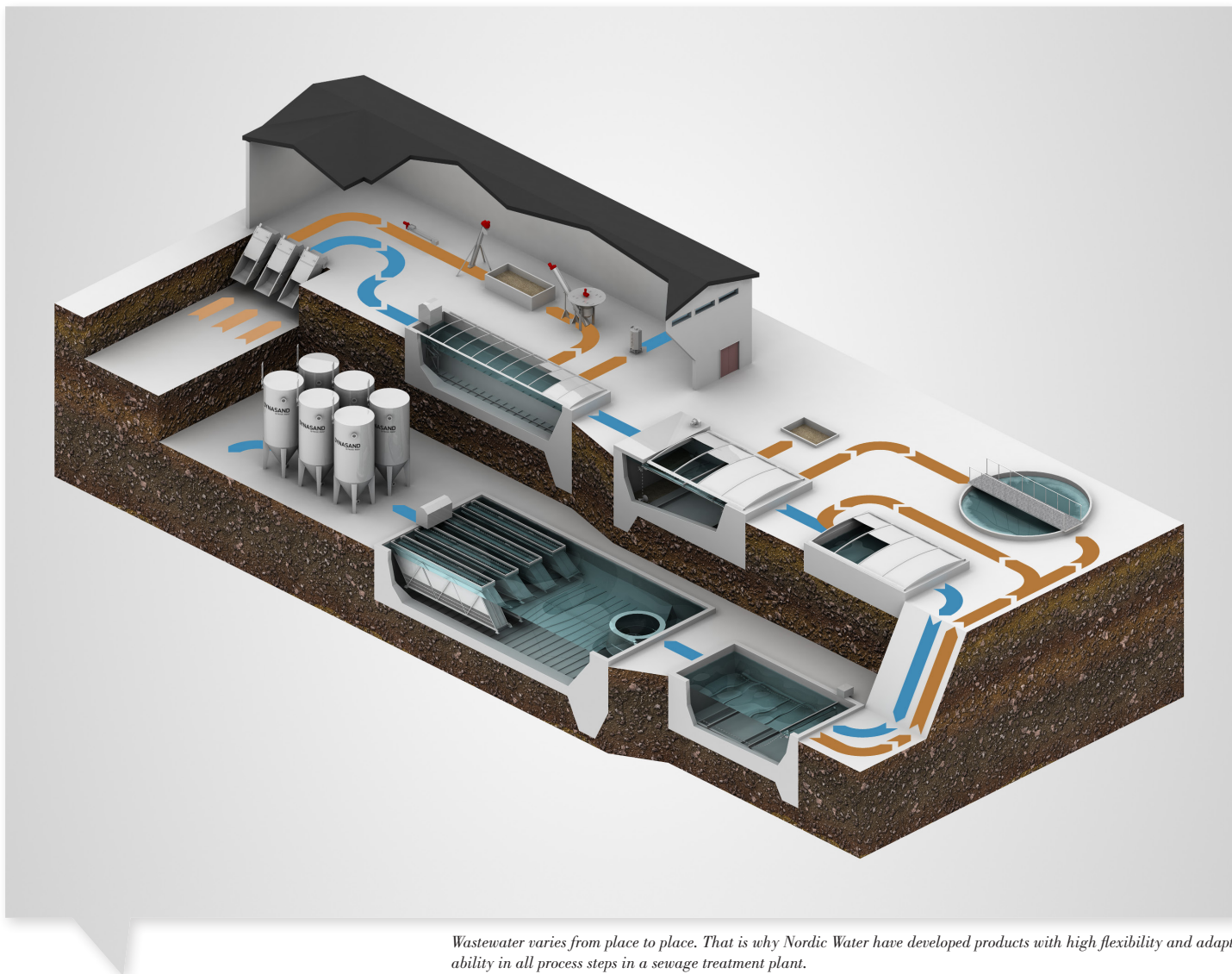
#### **High capacity in a small area**

A growing population and increasing immigration to urban areas mean that demands for water treatment capacity are constantly increasing. The shortage of space limits the expansion possibilities. The solution lies in exploiting accessible space optimally by upgrading to yet more effective water treatment technology.

Within Nordic Water's product line, most products are good examples of how capacity can be maximised in minimal space. In several cases we have helped our customers to more than double their capacity at certain stages of the treatment without using more land area than before.

#### **Good total cost for users**

The costs for the purchase, installation, operation and maintenance of a water treatment plant are ultimately paid by the users. A sure way to keep the total cost down for both owners and users is to choose treatment technology from Nordic Water. The high quality and long lifetime of our products combined with a reliable, maintenance free and energy-efficient design make them long-term cost effective down to the bottom line.



*Wastewater varies from place to place. That is why Nordic Water have developed products with high flexibility and adaptability in all process steps in a sewage treatment plant.*

## Sewage treatment with technology from Nordic Water protects the environment and health

Since people began to build society, we have been seeking waste management solutions. Farsighted leaders were quick to see the advantages of removing wastewater from town centres. In modern times, mankind has also seen the long-term environmental and health gains obtained from protecting lakes, the sea and rivers from being contaminated by household waste and soiled wastewater.

At Nordic Water, constant development takes place towards ever more effective solutions within sewage treatment. This is why we can help the leaders of today and tomorrow to meet the complex challenges associated with a growing population, increasing shortage of space and stricter requirements for both resource management and environmental protection.

### **Locally optimised treatment technology**

Municipal sewage treatment installations are often designed to handle solid particles, organic impurities and nutrients such as nitrogen and phosphorus. Since the composition of wastewater and the regulatory requirements are very different from place to place in the world, every installation must be adapted to local conditions.





In every project, Nordic Water therefore works closely with our local representative and with the final customer, both of whom have good knowledge of the requirements of the site. Our holistic approach and knowledge of the various treatment technologies mean that we can offer an optimal combination of different treatment stages adapted to local conditions.

#### **Effective sludge treatment**

When wastewater is treated, screenings and sludge are built up from the impurities that are separated at each of the different treatment stages. The costs for treating the waste can be reduced with more effective methods for processes such as dewatering/washing the screenings and sludge thickening.

The different parts of Nordic Water's product line are designed to work with each other to increase the dryness in sewage sludge and to contribute to effective management of the solid waste.

#### **Intelligent solutions for bad odours**

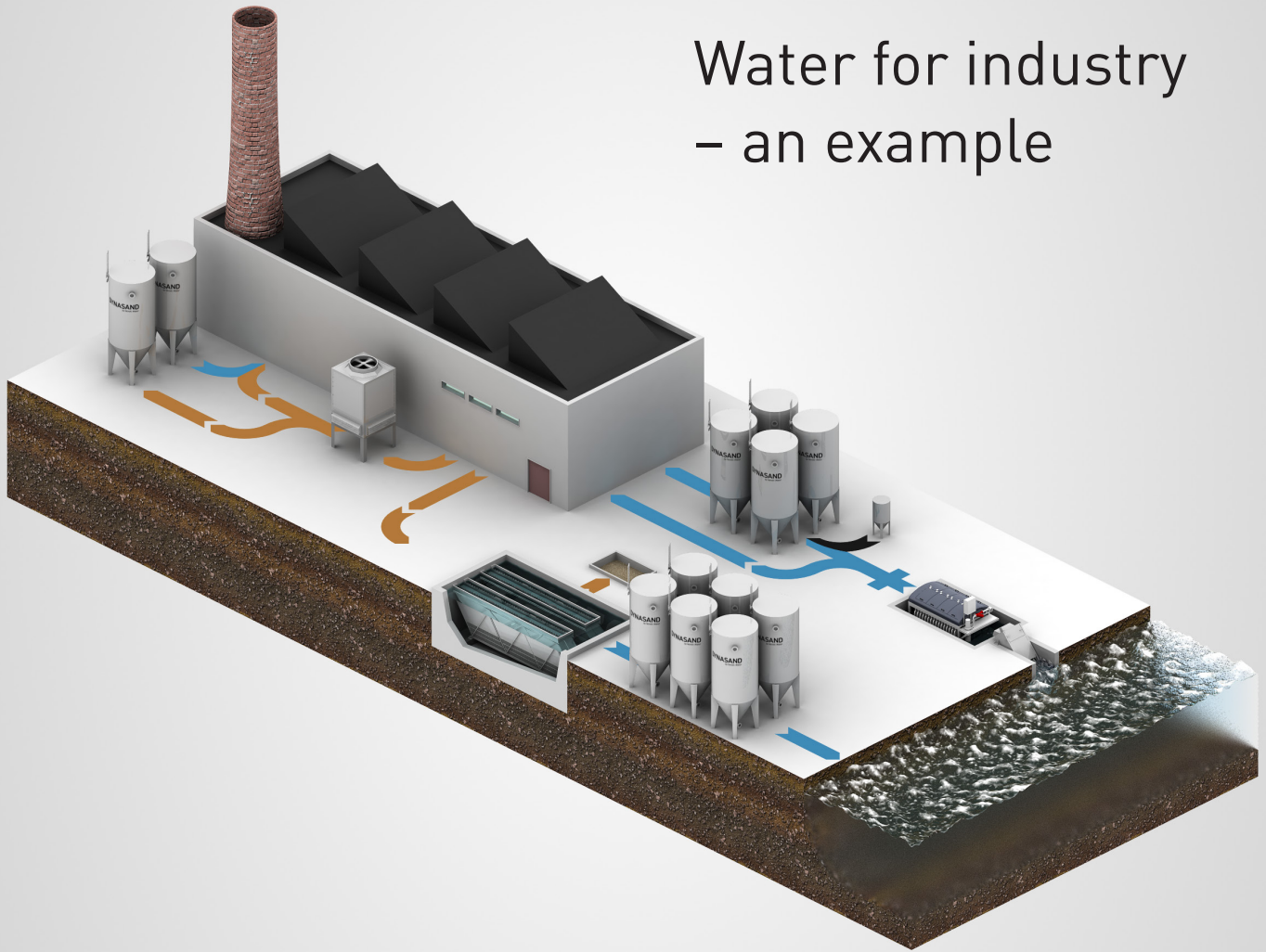
Bad odours can cause problems in sewage treatment plants, both for the employees and for those living nearby. The problem occurs primarily in the handling of faeces-saturated screenings and during pre-sedimentation.

Nordic Water offers intelligent solutions that solve the odour problem effectively, both by washing the screenings and by hermetically sealing the sedimentation tanks, combined with effective odour-removing carbon filters with a high purification level and a long lifetime.

#### **Future-proof treatment technology**

By using products from Nordic Water, owners of treatment plants can easily future-proof their investment. Capacity can be expanded rapidly with more product modules without using expensive new land area.

## Water for industry – an example



*Food, cooling, washing, friction reduction – water has many important roles in industry. Nordic Water's products are at the heart of water processes for a number of different industrial applications.*

## Industrial water treatment with technology from Nordic Water reduces emissions and increases profitability

Within industry, water is used as a raw material, rinsing agent and cooling fluid, and for cleaning. For large industrial water users, it is often profitable to invest in their own equipment to treat their raw water, process water and wastewater. Treatment and re-use reduce emissions, thereby decreasing environmental taxes, while production quality and resource management are simultaneously improved.

Nordic Water's product line is employed within many different industries both for raw water treatment, re-use of process water and for waste water treatment. Effective, energy-efficient technology combined with compact, reliable design make Nordic Water's products the first choice for a number of industrial applications, examples of which are given on the next page.





**Food.** Breweries, abattoirs, dairies and canneries are examples of major water users. For process water treatment and for purifying wastewater of abattoir waste products, scale, fat, detergents and other impurities, the food industry uses different combinations of Lamella settlers, DynaDisc filters, DynaSand filters and Meva screens.

**Steel industry.** Many steelworks use DynaSand filters and Lamella settlers in combination to separate iron mill scale from the cooling water that is used during rolling. During surface treatments such as galvanising and pickling, DynaSand filters and Lamella settlers are used to separate mill scale before the wastewater is released into the drainage system.

**Paper mills.** The manufacture of paper and paper pulp require a large amount of water which is often taken directly from a raw water source. By filtering it through a DynaSand filter, the water is cleaned of impurities that can disrupt the production process. Many paper mills also use DynaDisc filters, Meva screens and Zickert sludge scrapers.

**Airports.** When aircraft are washed, large amounts of water are contaminated that cannot be released directly into the public drainage system. Several large airports use Lamella settlers in combination with DynaSand filters to effectively separate heavy metals, glycol and potassium acetate from wastewater.



# We are present on each of the world's continents

Nordic Water's product line is today represented in treatment plants on every continent in the world. Every day, more customers realise the advantages to be gained by choosing Nordic Water as their supplier and long-term collaboration partner for purification equipment.

Our products are in operation in both small special units and in some of the largest water and sewage treatment plants in the world. On these pages we present some interesting examples.



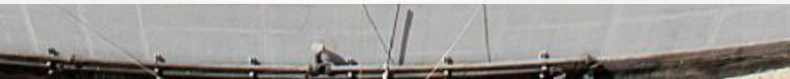
## Beckton and Mogden

The world's biggest Zickert installations can be found in London; more specifically in the enormous sewage treatment plants at Beckton and Mogden, which purify wastewater from 3.5 million inhabitants. The Zickert scrapers collect the bottom sludge from 29 sedimentation tanks, which each have a surface of 72 x 22 m.



## Dubai

The United Arab Emirates can be proud of the world's largest DynaSand installation, which has an important task in a large desalination plant for seawater in Dubai. Desalination takes place through reverse osmosis, which requires a very high degree of purification. 456 DynaSand filters with a combined capacity of 13,500 m<sup>3</sup>/hour are used to filter out particles from the salt water before it goes into the desalination process.



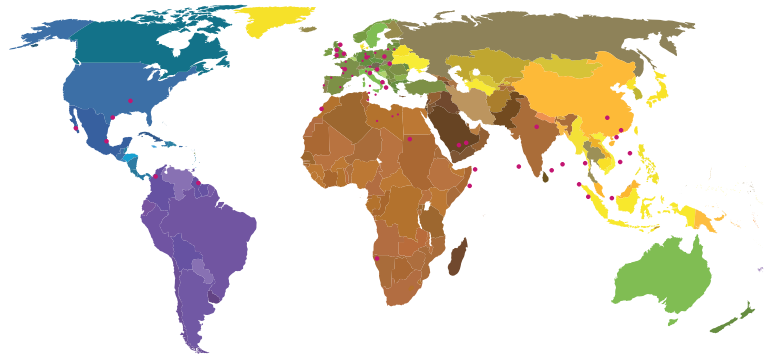
## Västervik, Gunnebo AB

The world's oldest two DynaSand filters can be found at Gunnebo AB, a metal company dating back to the 1700s located outside Västervik on the Swedish east coast. The filters were put into operation in 1979, and purify the company's wastewater of zinc and iron oxide, which contributes to reducing emissions into the Baltic.





It is estimated that in 2020 the Earth's population will reach 7.5 billion people. Each person consists of approximately 65 per cent water, which for an average person corresponds to about 40 litres. One person needs around 2.5 litres of water to drink per day. This means that by 2020, the Earth's water treatment plants will need a combined capacity of 18.8 billion m<sup>3</sup>/day just to provide humanity with clean drinking water.



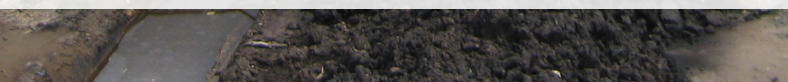
## Gothenburg

All of Gothenburg's wastewater is purified in the Ryaverket plant at the mouth of the Göta river on the Swedish west coast. The plant includes one of the world's largest installations of Meva Monoscreen. The incoming wastewater is received by twelve 1.8 metre wide Meva screens, which together swallow 72,000 m<sup>3</sup>/hour.



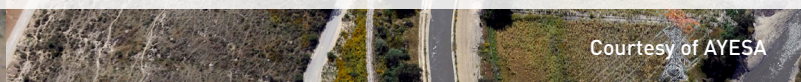
## Ho Chi Minh City

The seven million inhabitants in Vietnam's biggest city, Ho Chi Minh City, get their drinking water from the Saigon river. The water is purified in the Kenh Dong drinking water treatment plant, which has been equipped with 180 DynaSand filters. The Kenh Dong plant is under construction and will have a capacity of 200,000 m<sup>3</sup>/day.



## Mexico City

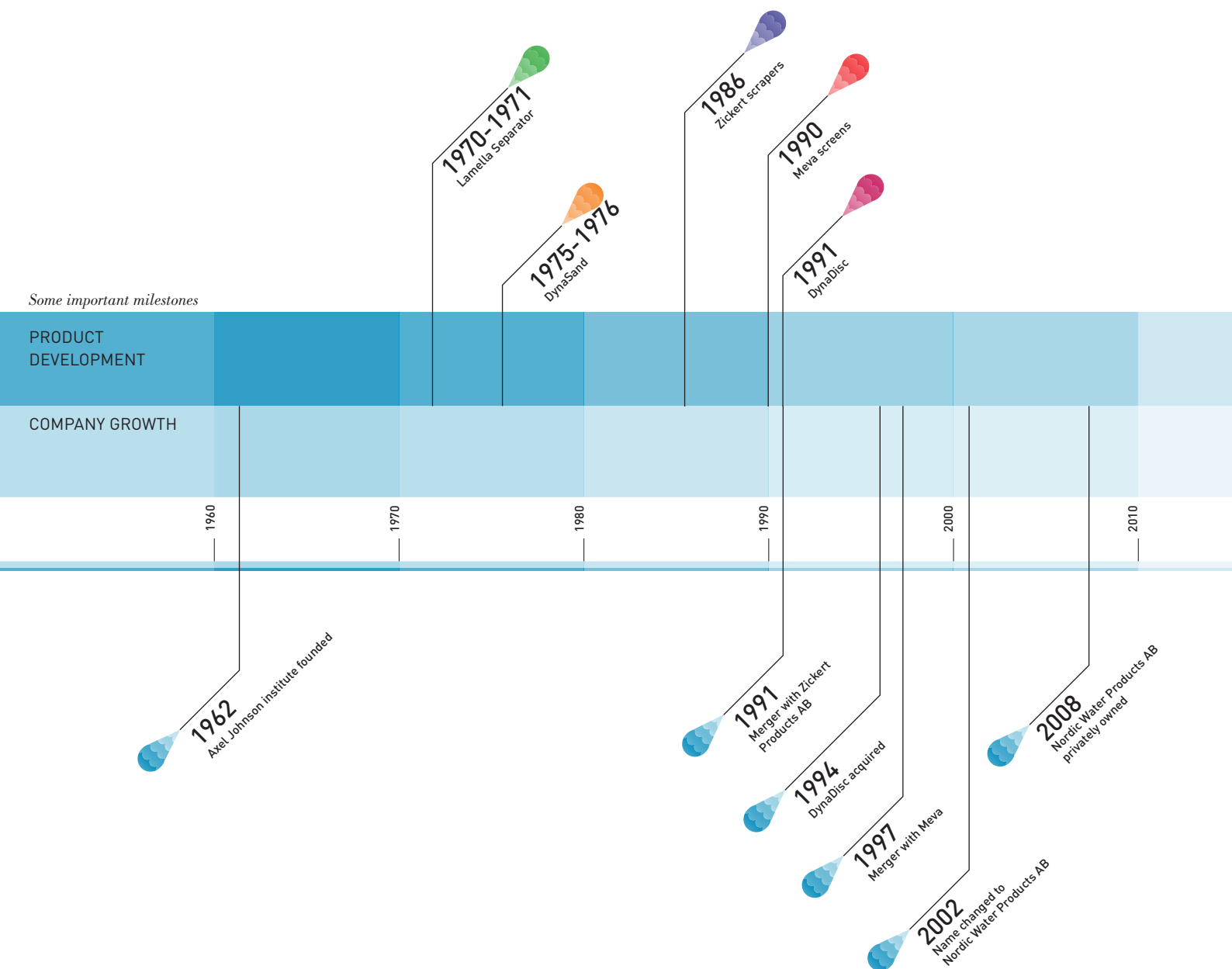
The world's largest sewage treatment plant, inaugurated in 2012 in Hidalgo outside Mexico City. The treatment plant is equipped with 30 DynaDisc filters with a total capacity of nearly 52,000 m<sup>3</sup>/hour, and 108 Zickert scrapers. This is the largest installation of disc filters so far in the world, and will treat wastewater from around 60 per cent of Mexico City's population.



Courtesy of AYESA

# Some important milestones

The foundation of today's Nordic Water is more than 50 years of research, innovations and company building. By continuously developing new water treatment technology and adapting to local conditions and customer needs, we have refined our products and developed our offering to our customers. Innovation and entrepreneurship has always characterised our company. Therefore our business relationships have crossed both national and cultural boundaries, and carried Nordic Water's brand and product line across the whole world. This is how we have worked up to now, and this is how we will continue to work in the future.





Nordic Water is a pure engineering company with its parent company in Sweden and its own sales companies in Norway, Germany, the Netherlands, Spain and China. Our sales organisation consists of independent distributors in more than 50 countries. Manufacturing is carried out mainly by subcontractors in Sweden, Germany and China. Most of our manufacturing output is exported.

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Nordic Water develops technologies and products for the purification of drinking water, wastewater and industrial water with world-leading brands such as Meva, Lamella, DynaSand, DynaDisc and Zickert. Our products are installed in more than 80 countries through a global network of our own companies and distributors. Our head office is in Gothenburg.

#### Nordic Water's brands

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EUROPE, ASIA, AFRICA,  
AUSTRALIA

DynaSand  
DynaDisc  
Zickert  
Meva  
Lamella  
NCS

AMERICAN CONTINENT  
AND THE CARIBBEAN

SuperSand  
SuperDisc (USA & Canada)  
Zickert Shark  
Meva  
SuperSettler  
NCS