INRIGO

Water & Energy Solutions

Inrigo

Inrigo is a Norwegian company providing turn-key water and energy solutions for the global market.

We customise our products and apply module-based and scalable systems to deliver the best solutions for:

- water treatment
- wastewater treatment
- industry- & process water solutions
- renewable energy solutions

We are responsible for the total implementation process, from project planning, design and construction, procurement and manufacturing, as well as assembly of the chosen solution on site.

Through our activities and business operations Inrigo shall contribute to UN SDG achievement, focusing on:

- Good health and well-being
- Clean water and sanitation
- Affordable and clean energy
- Industry, innovation and infrastructure
- Sustainable cities and communities

The challenges in water and energy supply worldwide are becoming increasingly complex, which requires new solutions that benefit the affected population.

Inrigo is committed to continuous research and development to ensure that our knowledge, experience and values provide high-quality and unique products that meet our customers' requirements and are in line with sustainable development.

Inrigo was established in Norway in 2008 and today it has a subsidiary in Cameroon and a sales office in the USA.

Inrigo's renewable energy solutions are developed through the associated companies Dynavec AS and Enerocean S.L.

ALTECH AS
Valves & Process Equipment

Altech leverer ventiler og prosessutstyr til Inrigo's mange ulike prosjekter.

Tlf. 413 16 345 • E-post: altech@altech.no • www.altech.no

DynaVec AS

DynaVec is a specialist on innovative hydro power plants. The company designs, manufactures, and installs customized Francis and Pelton Monsoon turbines for customers worldwide.

DynaVec's patented and proven technology enables design and delivery of fully hard-coated erosion resistant turbines in the entire waterway regardless of size. The technology ensures practically no operational down-time due to high sediment levels, extended maintenance intervals and hence significantly increased energy generation, revenues, and margins for end-customers. DynaVec Monsoon turbines are delivered for both the refurbishment and the new hydropower plant segment.

The company is headquartered in Norway with sales offices Peru and India. DynaVec is owned entirely by Inrigo.

EnerOcean S.L.

EnerOcean S.L. is based in Spain. The company leads the development of the W2Power floating wind solution, originally patented by Inrigo. By combining the proven technology of semi-submersible platforms, with two conventional wind turbines, and adding proprietary design elements such as inclined towers, innovative moorings and controls, EnerOcean will provide deep-water generated wind power at greatly reduced costs.

With two wind turbines mounted on the frame of the same floater, which always face the prevailing wind, W2Power yields one of the highest power-to-weight ratios and the lowest levelized cost of energy of any floating wind power technology. This innovative solution integrates patented features and key proprietary technology elements and has successfully completed testing at open sea at prototype level in Spanish waters, being the first multi-turbine solution in the world to reach this level of maturity.

PEMAC
Prosess teknisk måling og analyse

INSTRUMENTERING
FOR ONLINE MÅLING OG ANALYSE.

Corporate Social Responsibility & Sustainable Development

Inrigo contributes to value creation and economic development in the communities where we operate.

Moreover, we invest in the local communities wherever we have a presence, and in our employees and their families by supporting education, welfare and social activities. Our model for CSR are based on the following columns:

- Sustainable solutions
- Capacity- and institutional strengthening
- Welfare for our workforce, clients, stakeholders and society
- Responsible business practices with high standards of business ethics and integrity

Through our activities and business operations we shall contribute to UN SDG achievement, focusing on the following goals:

Service & Aftersale

All technical equipment requires inspection, follow-up and preventive maintenance in order to deliver optimum performance. Service is therefore part of our quality concept at Inrigo AS, and applies throughout our business.

Our well-equipped service department has special expertise in all process equipment specially within water and wastwater treatment plant. Whether you have an unplanned emergency or scheduled service, you need fast, convenient access to high-quality spare parts and equipment to keep your operations up and running at maximum efficiency.

Inrigo digital platform vact.no developed in close collaboration with more than 80 municipalities and industrial customers. The secure customer portal designed to provide our customers access to services and information for operation and maintenance of process plants. Our procurement experts will work closely with you to determine appropriate spare parts stock and optimum maintenance cycles. Should the accident occur, our service agreement customers will be given priority in relation to support and urgent matters.

A service agreement can, among other things, include a review of the existing process and possible proposals for improvements and optimization

When you have a service agreement with Inrigo, you get:

- Dedicated contact person with us
- Free phone support during working hours
- Discounted hourly rate and spare parts
- Education and training of operators
- Scheduled service and maintenance interval

META GREENTECH

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Wastewater reuse

Winery wastewater treatment is very important for the wine industry. Inrigo's CEMBR container plant is designed to treat winery process wastewater.

The system is highly automated, and it is utilized with world leading ceramic membrane bioreactor technology for treatment and reuse of the wastewater. Its UV disinfection system removes pathogens to ensure the safety of reusable water.

Our plug and play wastewater treatment system is engineered for fast deployment and simple operation and maintenance. This system is cost-effective since it is pre-assembled, housed in a standard ISO shipping container. It is compact, with a small ecological footprint and possibility of expansion. As all of the equipment are preinstalled and factory tested, onsite installation work is limited.

The pilot plant has been installed in Canvasback winery in Walla Walla county, Washington State.

Sustainable recycling of plastic waste

Inrigo's groundbreaking and patented pyrolysis technology is contributing to change the current value chain for plastic waste and used tires and sustainable waste management.

We have developed a solution in which waste is heated, broken down and reassembled into valuable products. A major advantage of our technology is that it allows for impurities and a mix of different colours and different types of waste. We are talking about **local and sustainable recycling**, both for used tires and mixed plastic waste, from households, agriculture, and industry. This will greatly contribute to a sustainable circular economy.

We believe that we as a nation must move away from an "out of sight, out of mind" culture.

Through the use of new technology, we will contribute to facilitating local waste management, so that the need for long-distance transport is minimized as the end products of the pyrolysis process also can be used locally. Our pyrolysis technology will help to solve important challenges related to the authorities' demands for increased recycling, both here in Norway and internationally and contribute to achieving the UN's sustainability goals and the EU's climate goals.

Duotech AS er en ambisiøs leverandør av løsninger innen industriell automasjon. Firmaet er i vekst, og har kunder i sektorer som prosess, samferdsel, kraftproduksjon, vann/avløp og næringsmiddel.

Duotech er en uavhengig systemintegratør og har kompetanse på flere forskjellige plattformer som brukes i industrien, og kan derfor tilpasse oss kundens behov.
Vi leverer åpne løsninger og legger vekt på at kunden har fullt eierskap til løsningen etter leveranse.
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Water Treatment

Storelva water treatment plant

SCAN AND WATCH VIDEO

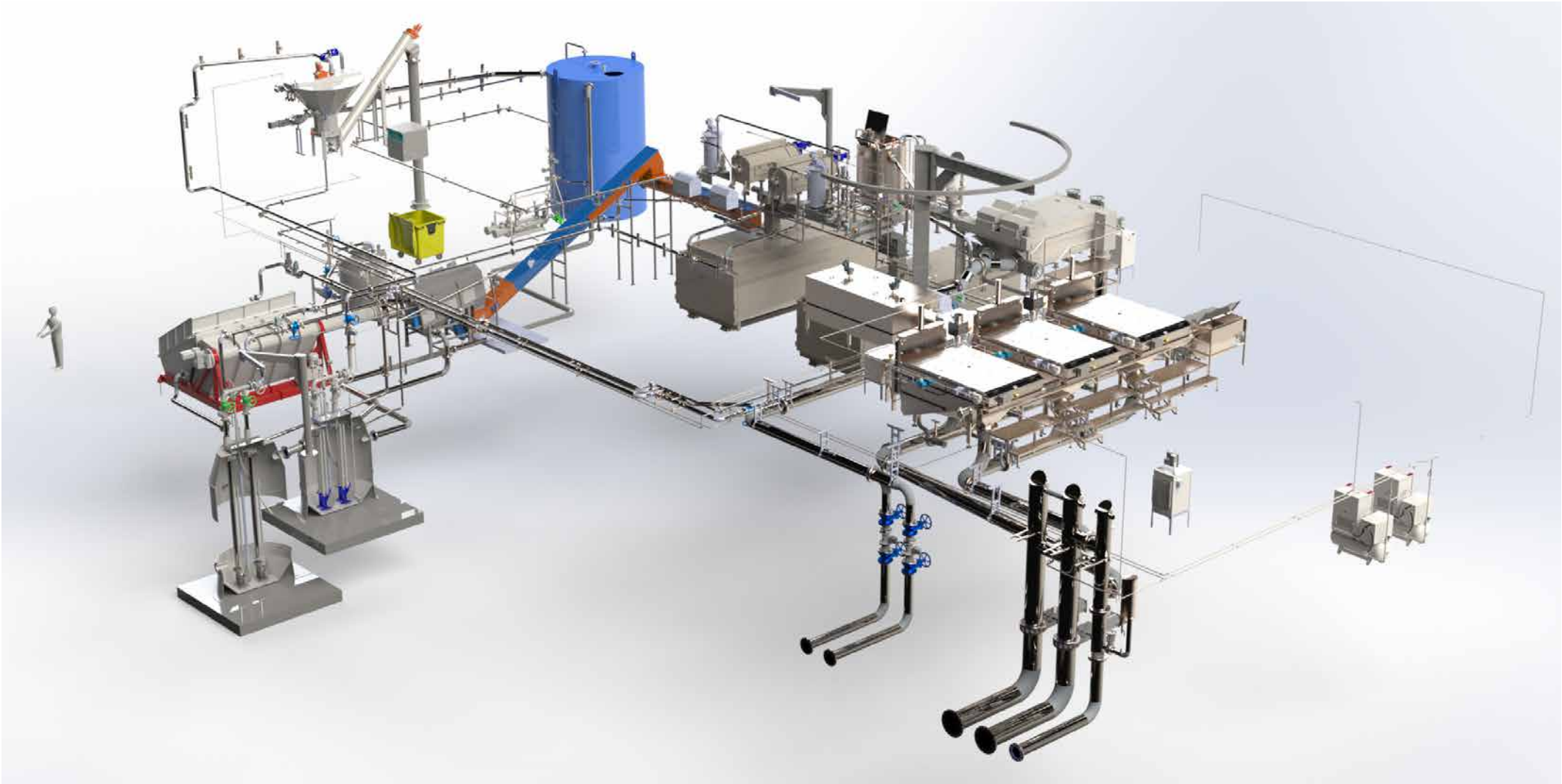
Senja is Norway's second largest island and is located in Troms and Finnmark counties. The island has an area of 1,589.35 km² and just under 8,000 inhabitants. Fish farming and processing is an important industry for the island, and stable access to high quality water is crucial.

Storelva VBA in Senja is the largest and newest drinking water treatment plant located on the island. The raw water source is a small lake that contains high concentrations of natural organic matter (NOM) that must be removed through enhanced treatment. The main treatment step consists of spiral wound nanofiltration membranes for removal of organic matter, emerging contaminants and microorganisms. The plant has a pretreatment system based on pressurized sand filtration and automatic micro screens for primary particle removal protection to protect the membranes. The treatment plant produces a high-quality potable water, that is also used directly for a large food processing plant. The treatment train consisting of sand filtration, nanofiltration and UV disinfection ensures a very high hygienic barrier. The plant is designed and built with full redundancy.

The plant is dimensioned for a net daily production of potable water of 3120 m³ per day or an average production of 130 m³ per hour.

The plant is prepared for a doubling of the capacity to 6240 m³ per day.

The scope of this turnkey project included design, engineering, manufacturing, assembly including electrical automation and operational monitoring. The plant started the production on May 2022.



Harstad Wastewater Treatment Plant

Harstad Sør RA is a new wastewater treatment plant (WWTP) located close to the city center in Harstad. The WWTP receives relatively diluted domestic wastewater from 8200 inhabitants from several pumping stations. In addition, it also receives septic and external sludge. The treatment requirement is primary treatment (>50 % suspended solids reduction and >20 % BOD5 reduction).

The process solution consists of an inlet pump station followed by a pre-treatment stage with mechanical step screens. Screenings are washed, compacted and transported to a container through a screw press followed by a shredder. The primary treatment technology applied at this WWTP is based on coagulation and flocculation using a cationic polymer followed by separation on rotating belt filters from Salsnes filter. The sludge is removed from the filtermesh by a scraper and high-pressure washing is used for automatic cleaning of the filtermesh. This compact technology only uses 1/10th of the land required for conventional sedimentation technologies. This makes rotating belt filters a very attractive solution in urban areas. Furthermore, this filtration technology is well proven and also very energy efficient.

The treatment efficiency at the WWTP is high and in average > 60 suspended solids and > 50 % BOD5 is removed. The sludge treatment consists of sludge pumping systems, sludge storage tanks, polymer dosing, dewatering through a screw press and closed ventilated containers for dewatered sludge. The state-of-the-art screw press that dewaters the sludge to > 30% dry matter without addition of polymer, when polymer is added the dry matter concentration reach approximately 40 %.

The external sludge and septic reception system consists of a receiving trough for emptying a septic truck, a wash drum for removing coarse materials, a sludge pumping station, sand separator/washer and sludge storage tank. From the sludge storage tank external sludge is pumped to the primary treatment stage for further treatment. Primary treatment plant with belt filters and septic tank reception, total supplier process and electrical / automation: design, execution and process responsibility.

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www.salsnes-filter.no

INRIGO

INRIGO AFRICA

International Turnkey Project

Cameroon

Safe water supplies, hygienic sanitation, and high-quality water management are fundamental to global health.

In 2017 Inrigo was awarded a contract for a turnkey project in Cameroon with state owned Camwater (Cameroon water Utilities Corporation) to provide potable water supply to the inhabitants of Meyomessala, Melong, Bare, Kekem and Nkongsamba. The project was financed by a loan from Export Credit Finance (Eksfin).

Per the contract, two water treatment plants with production capacity of 18000 m^3/day are engineered and constructed during 2017–2019 with the following scope of work:

- Surveying & testing
- Design & engineering
- Construction of:
- Raw water intake & pumping station
- Water treatment plant
- Water storage tanks & pumping stations
- 40 km of Distribution Pipeline
- EI, automation and SCADA system
- Renovation of existing elevated basin
- All civil work

The main treatment process is based on coagulation, flocculation, ceramic membrane filtration, and chlorine disinfection. However, to increase the capacity of the membrane filtration, a lamella clarifier system is applied as a sedimentation unit prior to membrane filtration due to relatively high suspended solids, turbidity, and organic matters in raw water.

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SCAN AND
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BUFAB

I Bufab-gruppen handler bærekraft om å balansere økonomisk framgang, miljøforvaltning og sosial utvikling på en måte som kommer alle våre interessenter til gode.

Bufabs bærekraftsarbeid styres primært av våre etiske retningslinjer og vår policy for ansatte, miljø, kvalitet og antikorrupsjon.

Bufab har signert FNs Global Compact-initiativ og følger initiativets 10 prinsipper.

Gjennom å systematisk forbedre bærekraften i virksomheten vår håper vi å bli en mer aktuell partner for stadig mer krevende kunder. Hos Bufab står ikke kommersiell levedyktighet og bærekraft i motsetningsforhold til hverandre – de støtter hverandre.

Fokus på vår teknologiske framtid

Vi i VisionTech er opptatt av samspillet, og sammen med kunder og samarbeidspartnere finner vi teknologiske løsninger som tar oss videre.

Ta kontakt om du ønsker en samarbeidspartner for å ta frem gode automatiseringsløsninger.
www.visiontech.no

VisionTech

Partner for Sustainable Development

Ocean GeoLoop AS is a green tech company aiming at using nature's own way of solving the challenges of our time in a circular way.

In 2022, the company introduces the GeoLoop CC technology that captures point source CO_2 emissions, using natural and harmless processes, transforming the CO_2 to a stable, liquid state. Ocean GeoLoop call this process

"Carbon capture by nature"

The GeoLoop CC will help companies and countries around the globe to reach their goals of reduced emissions before 2030 and net zero by 2050.
The company is listed on Oslo Børs Euronext Growth under the ticker OCEAN.

Inrigo in close corporation with Ocean Geoloop, SINTEF and Norske Skog, designed and manufactured the world first pilot plant under challenging circumstances during the pandemic.

The Pilot Plant has an annual capacity of capturing 1000 tons of CO_2 .

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Member of National Innovation Clusters

The **NCE Aquatech Cluster** has more than 100 partners and develops and delivers tech solutions to its members within the aqua farming industry. The goal is to deliver technology for sustainable growth in aquaculture food production around the world, and establish a global position for farming technology from Norway.

NCE AQUATECH CLUSTER
Norwegian Aquaculture Technology

Certificates and approvals

NORSK AKKREDITERING

EN - ISO 9001-2015
EN – ISO 14001 -2015
EN - ISO 3834-2 -2005

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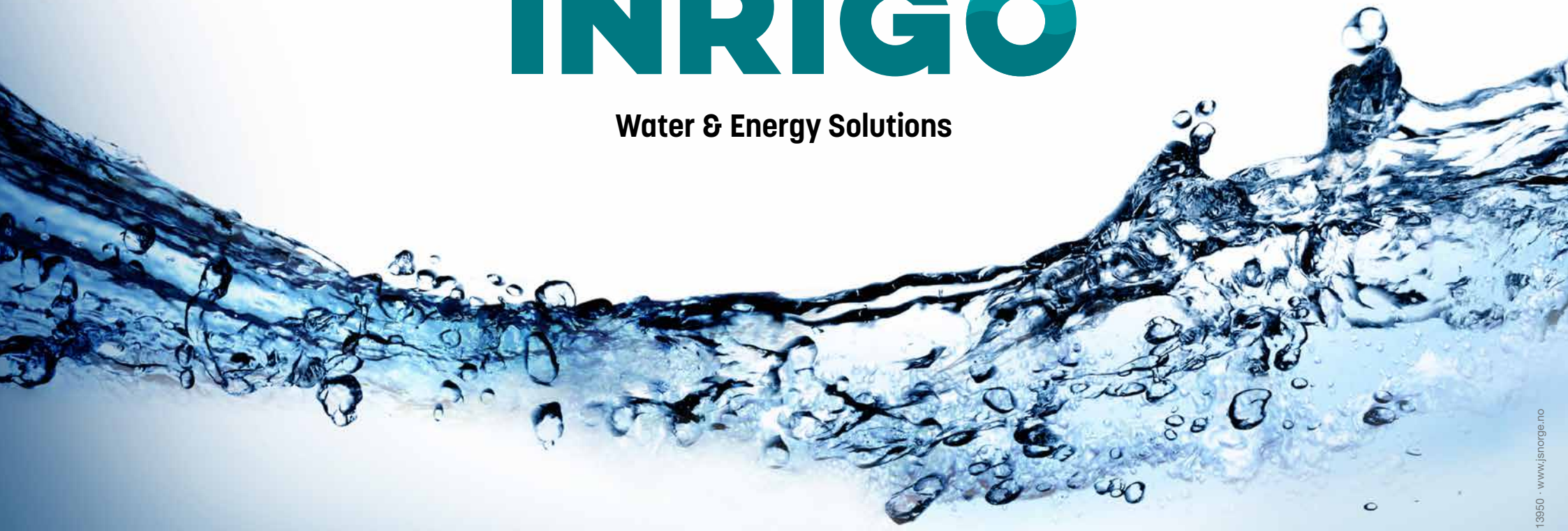

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