



EXPECT
STORIES FROM THE
AVK WORLD

Expect... **AVK**

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Chief editor

Anne-Mette Kjær - amk@avk.dk

Michael Ramlau-Hansen – mrh@avk.dk

Content

Katrine K. Sørensen – kakl@avk.dk

Lise Rye Brix Østergaard – lios@avk.dk

Frontpage picture

An enormous needle valve (DN1800) getting ready for shipment out of our AVK Anhui facilities.

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DEAR READER

#COP26 in Glasgow is considered our last chance to save the world from a temperature rise of more than 1,5 degrees and thereby dodge further catastrophic changes to our climate.

At the #COP26 meeting, the known television legend and presenter David Attenborough stated: “If we are a strong enough force to destabilise the entire planet separately, we ought to be able to save it by working together”.

And from the small island states in the Pacific, it is explained that: “A temperature rise of more than 2 degrees is an absolute death sentence to our islands”.

However, an important deal has been agreed under the meeting in Glasgow. A group of heavy users of coal for energy production has agreed to outphase coal fired plants by 2040.

The question is: Where then should the energy come from?

If you talk to decision makers about the “energy mix” of the future, they almost always point towards wind power or solar energy. And regarding energy optimisation, the same people will consider optimising on buildings or the like. Where is the understanding of water’s importance?

On a global scale, 35-40% of all produced water is wasted in distribution. Producing and transporting water is highly energy consuming, and 35-40% of that energy is there also wasted. A gigantic loss for – simply – no reason.

IEA (International Energy Agency) has calculated that an average municipality uses between 30-50% of their energy expenses on water supply and wastewater handling. If the water infrastructure is made energy-neutral, which is already possible with known technology, the municipality will be able to save up to 40% on the energy bill. IEA has also

calculated that if the entire world’s water networks reduced their water loss to below 10%, the savings on energy would be 650 TWH – the same energy output as all coal-fired power plants in Europe.

But the water utilities need to know their place in the future water debate. When the theme of tomorrow’s energy sources is brought up in the public debate, we need to be ready with our argumentation, and be ready to put forward water’s importance in the equation. The more we can highlight the importance to decision makers across the world, the more engagement and investment will be put into optimising the infrastructures, and we get more opportunities to offer our solutions and expertise – all contributing to the UN goals and to avoid the grim scenarios mentioned at the COP26 meeting.

Enjoy reading.

Michael Ramlau-Hansen



WATER'S IMPORTANCE ON THE BLACKBOARD

DENMARK

*By Michael Ramlau-Hansen,
Public Affairs,
AVK Holding A/S*

The more we can contribute to awareness, the better water systems can be generated, and the more people will have access to safe, clean water supply and proper sanitation. This is how we can contribute to the sustainable development goal #4 – “Quality Education”.

Water is high on the agenda at AVK, simply because it is the most important resource on earth. If there is no water, there is no life. It is crucial for human survival, health, well-being and for our food production. Therefore, it should be placed much higher on the climate and energy debate.

Promoting sustainable solutions to utility personnel and key decision makers

Once a year, we welcome authorities and utility personnel from developing countries who are in Denmark to acquire a postgraduate education about sustainable water infrastructure. Here, they are introduced to our

products' vast impact on the water infrastructure, especially regarding the district metering area (DMA) strategy, smart management, and demand-driven pressure management. They are also introduced to our own rubber production at AVK GUMMI, and how we assure high quality in the rubber that form central parts of our products. Our products are in direct contact with the water in a supply network, so it is highly important that they leave no trace on the water's quality.

GIRLS' DAY IN SCIENCE AT AVK HEADQUARTERS

DENMARK

*By Katrine Klejnstrup Sørensen,
Communications & Marketing,
AVK Holding A/S*

On October 6-7, our Academy & Visitor Centre was buzzing with energy as we hosted a workshop-event for local schoolgirls.

AVK took part in the nation-wide campaign “Girls' Day in Science” and invited 120 girls (60 on each day) to a great day of fun and learnings.

The main focus of the day was water's role in liveability, health and sustainability, as well as how

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What is Girls' Day in Science?

The campaign is a yearly event which aims to inspire more young people to choose an education in the field of science and technology. It is established by The House of Natural Sciences (Danish: Naturvidenskabernes Hus) which is a private, non-profit organization that bridges the gap between schools and companies and supports teachers in the development of inspiring and application-oriented teaching

sustainable water management can contribute to our common UN goals, and the girls were given examples of how they are able to make an important difference in the world around them.

Therefore, it was only natural that the girls should meet some of our skilled female employees and draw inspiration from their daily work life and career background. They had the pleasure of meeting Liv Lykke Elmoose from AVK Holding's Digital team, who explained how we use our digital platform to both visualise, promote, and sell sustainable water solutions. They also met Ina Dorfman from AVK International who inspired through her broad, fascinating career and many different roles within structuring a product's supply chain. Finally, they met Kristine Howe Kjer, who is one of our external partners on our Water Summer School project. Kristine introduced the girls to the fields of biology and research, and to some of the latest technologies that are being used today within the water and energy sectors – to give the girls an idea of the life-changing innovations they can contribute to within the field.

The girls also visited our Flowlab to experience some of our products' functionalities and "Smart" add-ons.

After lunch, the girls were presented with some practical challenges, such

as drawing up a sustainable solution in the form of a either:

- A safe water supply solution that takes flooding, dry spells and pollution into account,
- A model that describes how to avoid pollution of lakes and rivers through wastewater discharge, or,
- A circular system that takes advantage of water's natural journey through society.

There was a lot of great discussion and brainstorming going on, and many good solutions to real-life issues were presented in groups.

Last year's visit was cancelled due to Covid-19, so this was the first time AVK joined the campaign - but definitely not the last! Big thanks to all for a great day.



FROM ORGANIC WASTE TO GREEN ENERGY

DENMARK



By Martin Munk Pedersen,
Sales Manager,
Vatech 2000

At Gemidan's pre-treatment plants, organic waste is turned into biopulp for degassing at biogas plants. The technology ensures sustainability and optimal energy utilization of the waste, and AVK knife gate valves control the flow.



Waste is an important resource

Waste is not just waste. If handled properly it can be an important resource. At Gemidan, they are specialists in processing technologies for treating and recycling food waste. They have developed the Ecogi technology for pre-treatment of organic waste such as source-separated household waste and discarded packed food from business customers into a pure biopulp that can be used for biogas production.

Gemidan operates several Ecogi plants. The Ecogi Egedal plant, which is one of the most recently established Ecogi plants, has two Ecogi lines and

capacity to treat 120,000 tonnes of organic waste annually.

Turning food waste into energy

At the Ecogi plants, food waste is converted into biopulp with very high purity using environmentally friendly technologies. The plants can treat virtually all types of organic waste.

When the organic waste arrives at the plant, it is loaded to the feed hopper. It is then automatically transported to the pulper, where it is mixed with process water, and stirred so that all

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Flow control with knife gate valves

VATECH 2000 has supplied AVK butterfly valves and AVK knife gate valves with pneumatic actuators, electric actuators and handwheels for all Gemidan Ecogi plants, all with a stainless steel body.

At Gemidan Egedal, knife gate valves with pneumatic actuators are installed:

- on clean water and process water flows - process water for the pulper, process water and clean water for the separator and water led back to the process tank
- from pulper to separator
- from separator to biopulp tank
- between the two Ecogi lines at the plant

In addition, knife gate valves with electric actuators are installed for draining-off biopulp from the storage tank and knife gate valves with handwheels are installed on the main line to the biopulp tank and on the pipe supplying water to the plant. Butterfly valves are installed where it is important to have the possibility of a quick shutdown.

packaging is opened by friction without being dissolved along with the organic waste. The pulp is then sent to the separator, where additional process water is added. When the pulper is empty, the valve between the pulper and the separator closes, and the pulper can be filled with a new batch of organic waste. From the separator, the biopulp is pumped to a tank for storage before it is transported to a biogas plant. The reject that remains in the separator is washed in two steps. First with process water and then with

clean water to achieve the highest possible organic utilization of the waste. The reject is then dewatered in the separator before being transported to a container for storage, and later on it is transported to a waste incineration plant or to recycling. The drained water is led back into the process tank.

All processes at the plant are automated, and the operator can monitor the plant and control the processes electronically.

CHECK OUT AVK NEDERLAND'S NEW CORPORATE VIDEO

THE NETHERLANDS

*By Dana Hofman,
Marketing Manager,
AVK Nederland B.V.*

Last year, AVK Nederland celebrated its 40th anniversary. It seemed appropriate to give our relations an insight into our company - something we had always wanted to do. We want our customers to know what we stand for and show our daily activities in terms of sales, logistics, production, development, customer service and corporate social responsibility.

The filming was done in one day and went great! It is great to see a lot of our colleagues shine in the video.



Scan the QR code above to see the video on your device.

DEVELOPMENT OF A MULTI-PURPOSE WATER MANAGEMENT SYSTEM

HUNGARY

Back in the 1970s, a Multi-Purpose Water Management System (HTVR) was planned in the region around Debrecen in Hungary, but it was never completed. Decades later, in response to societal needs, the first stage of a new development program CIVAQUA can begin.



By Tamás Bedegi,
Product Manager,
AVK International, Hungary

The main needs for regional development to be covered by the CIVAQUA program are:

- Establishment of irrigation facilities in valuable agricultural areas around Debrecen, Hungary's second largest city
- Improvement of the environmental condition of Debrecen by creating a wet-land zone to be established in the line of the Tóccó stream
- Reduction of dust pollution
- Improved groundwater enrichment and microclimate, and prevention of degradation processes as a result of improved water management in Great Forest, Debrecen
- Elimination of water scarcity by replenishment of the Erdőspusztá lakes

The project also contributes to the long-term goal of transporting water without pressure from Tisza – from

the ridge pipeline to the planned 170 hectare Ágod Valley reservoir. This reservoir will greatly contribute to the solution of insufficient inland drainage and water accumulation problems in the area. In future, it will also be filling the 57 hectare Nagy tó/Debrecen reservoir.

The purpose of the project is implementation of a sustainable water management in the region, and the main goal is development of the valuable agricultural areas west of Debrecen. The areas cover about 2300 hectares, and irrigation water can be supplied from the Eastern Main Canal.



First stage includes construction of a branch pipeline. A 6,200 m pipeline with a diameter of 1,000 mm which will supply water from the ridge pipeline to the future Ágod Valley reservoir, as well as to the planned recreational lake area at the border of Debrecen. For every 500 metres, a water extraction facility must be established on the pipeline.

Through Paor-Víz Kft., one of our distributors in the Hungarian market, we deliver AVK gate valves, knife gate valves and accessories for the project.

The following AVK products are delivered to the CIVAQUA project:

- 7 pcs DN1000 PN10 knife gate valves with rising stem and handwheel
- 7 pcs DN1000 PN10 knife gate valves with non-rising stem and handwheel
- 14 pcs DN400 PN10 gate valves

EFFICIENCY THROUGH SUSTAINABLE PROCESSES AT AVK VÁLVULAS

SPAIN



*By Javier Garcia Noblejas,
General Manager,
AVK Válvulas*

Less is more

At AVK Válvulas, the new year will be kicked off with a new warehouse and office in Tarragona. The new warehouse will be 3.300 m2 which is 25% smaller than the current, but with an extra level we will have the exact same capacity. Previously, we were also forced to rent an extra warehouse for our desalination projects. This can now be handled in-house, in a big assembly area. We have also incorporated an outside area for containers and pallets, meaning that we will have 35% more capacity in the future.

Sustainable surroundings

The new office is only half the size of the old, but better structured, and has big windows and skylights in the

roof. The building is well isolated and equipped with energy saving lights. We expect to be able to save more than 50 % in our electricity consumption alone.

Two years ago, we also moved our old location in Madrid to a new warehouse, where we are able to reach a capacity of 1,000 pallets plus 150 on an outside area. Before then, we received all goods in Tarragona and

sent them off to customers as well as to the Madrid warehouse and on from there. Now each warehouse receives its goods and distributes directly to its customers, saving both costs and delivery time.

Both warehouses have unloading docks, which let us unload saving time and costs.



DOUBLING THE LOCAL WATER PRODUCTION CAPACITY

BRAZIL

To supply more than 3.5 million habitants, the Corumbá water production system upscales to double capacity to meet future needs.

*By Juliana Cristine Celestrim,
Marketing Assistant,
AVK Válvulas do Brasil*

Location: Brazil, in the cities of: Luziânia, Valparaíso de Goiás, Cidade Ocidental and Novo Gama, in addition to the regions of Gama and Santa Maria, in the Federal District (Brasília).

The Corumbá water production system covers a raw water pumping station, pipeline, transmission line and an electrical substation. The system captures water from the Corumbá IV Reservoir and has a treatment structure that makes the water potable for distribution within the Federal District and the Goiás area.

With the capacity to benefit more than 3.5 million inhabitants, the current flow of 2,800 liters of water per second is expected to reach 5,600 liters of water per second at completion.

The catchment point at the reservoir is in the municipality of Luziânia. The area, which is covered by the lake, is around 173 square kilometers. From this stage onwards, the water passes through a raw water pipeline. The construction responsibility of this pipeline is shared by the companies SANEAGO (Sanitation Company of



Goiás) and CAESB (Water and Sewage Company of Brasília).

The water will be taken to the water treatment station in Valparaíso, built entirely by CAESB, and is forwarded to the two units of the Federal District. Here, the water will be sent by the Treated Water Elevator onto Santa Maria, where it will be distributed to the southern part of the capitol. These works, carried out by CAESB, include the completion of a pipeline that connects Santa Maria to Gama and the reservoirs, for distribution in the region of Recanto das Emas.

The project is the result of a R\$155.1M investment, half from own resources and half from federal resources. In the first stage of the system, more than R\$315M were invested.



Products supplied to the project:

- AVK Gate valves
- VCW Butterfly valves
- VCW Check valves

FIELD ASSISTANCE THROUGH AUGMENTED REALITY

USA

American AVK is constantly searching for ways to engage our customers. A new technology really piqued our interest in what we could offer to our customers in the field.

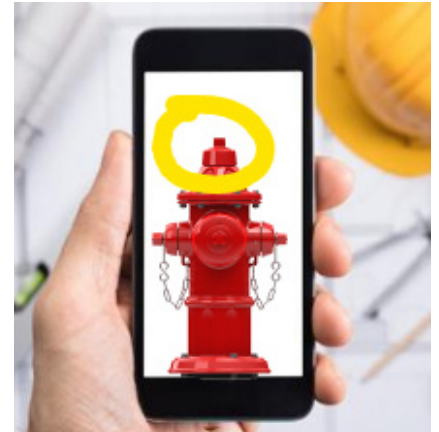
*By Anne Paine,
Marketing Manager,
American AVK*

Augmented Reality offers a digital layer of information in our real-life environment; just as we have seen and experienced in e.g. games such as Pokémon Go and in training applications.

The technology offers a unique opportunity in assisting our customers in the field. We thought we could apply this approach in our own settings, by offering this same technology to assist our customers in the field.

So, how does it work?

We teamed up with PTC, who created Vuforia Chalk; a cloud-based solution that allows users to connect through

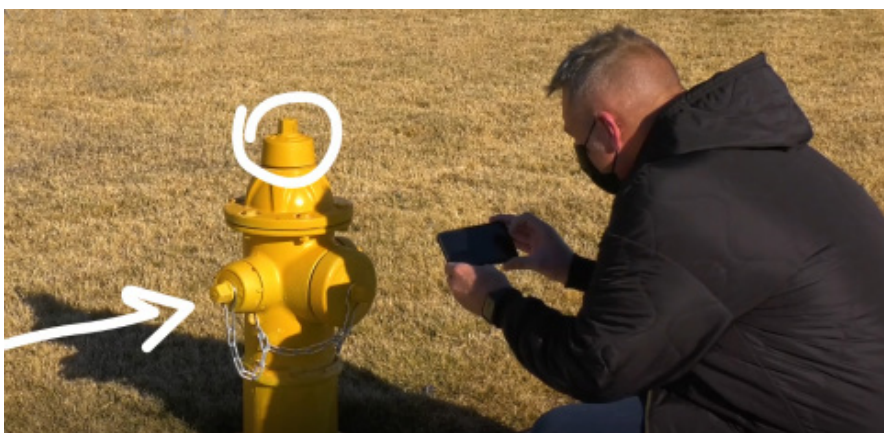
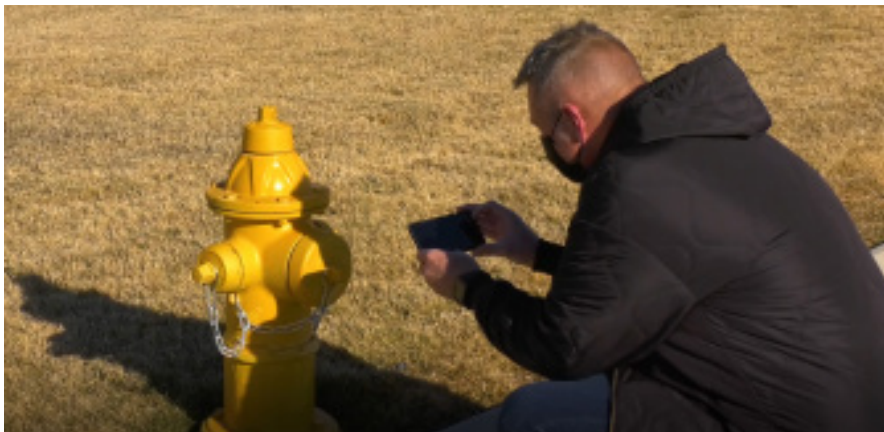


the Chalk application. First, the customer reaches out to American AVK by phone, text or through our support chat. The customer is advised to download the app and that they will receive a 9-digit code to enter. Once they type in the code, they are connected to an expert from American AVK who is ready to support them right where they are.

The two share a video screen with the ability to communicate by drawing on the screen, so it is possible to show exactly where e.g. the issue is with the product, or what needs to be done.

After the call is over, images from any drawings are saved and emailed to both participants.

We have already had several instances where this technology has saved us hundreds of driving miles, as well as the waiting time for our customers.



RAINWATER FOR LAUNDRY AND TOILET FLUSHING

DENMARK



By *Katrine Klejstrup Sørensen*,
Marketing & Communications,
AVK Holding

In Denmark, clean drinking water is used in all household activities, including laundry and toilet flushing. By using rainwater for some of these, it is possible to cut 30-40% of a home's drinking water consumption.

A little north of Aarhus lies a little sustainable town called Nye, where the vision is to create a greener way of life for the residents. The supply company Aarhus Vand (Aarhus Water), together with a number of skilled partners, was given the opportunity to create a new treatment plant for secondary water.

At the new treatment plant, rain and surface water from roofs and roads in the area is led via gutters and open canals into a rainwater lake, rainwater from the reservoir is then treated

before it is led out via separate purple water pipes to the residents' toilets and washing machines.

The water supply in Nye is based on a two-string system, where the secondary water pipes are purple, to avoid confusion with the ordinary blue pipes with clean drinking water.

Important groundwater savings

In addition, a central secondary water solution is being developed, where the collected water from the entire

urban development area is treated at a treatment plant before it is led in a separate pipe network to the homes for use in toilet flushing and for laundry.

The treatment plant provides savings of 30-40% on the drinking water consumption. In this way, we make the homes of the future more sustainable, and with the population growth in

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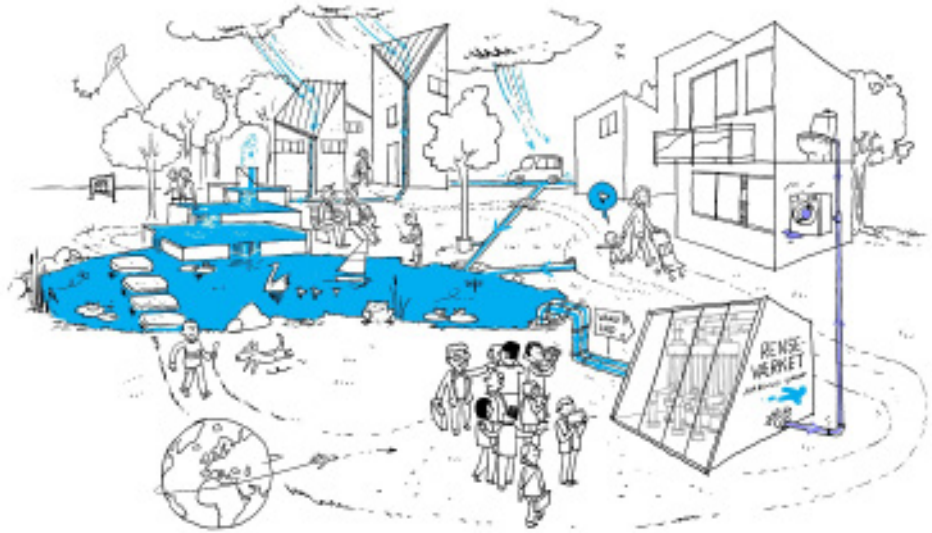
Aarhus, the groundwater resources must be managed with utmost care.

The treatment plant is the first in Denmark, and we hope that it is the starting point for many more around the country and abroad.

Supplying 15,000 residents

The central secondary water solution is established and operated by the local water utility, Aarhus Vand, which means that the citizens of Nye have a sustainable lifestyle without the responsibilities, expenses and hassles that are normally associated with the use of secondary water. A professionally run central treatment plant is a guarantee of safe operation and safety for the residents.

The developed solution is implemented in the construction of the first stage of Nye. The stage is on 18 hectares with 600 homes for approx. 2,000



residents. The treatment plant has been up and running since August 2021.

Visit www.aarhusvand.dk to learn more about this and many other inspiring projects initiated by Aarhus Vand

In the long run, the city will extend over approx. 150 acres, and accommodate up to 15,000 residents.

REFURBISHING THE DURBAN DRY DOCKS PUMPING STATION

SOUTHERN AFRICA

*By Nicole Singh,
Group Marketing Manager,
AVK Southern Africa*

The Port of Durban has the busiest container terminal on the entire African continent. The graving dock opened for business in 1925 and has been in service ever since. The Port of Durban is now in the process of its first major refurbishment in its +90-year-old dry dock history.

The rehabilitation of the inner caisson, which divides the Port of Durban's Prince Edward Graving Dock into two compartments, enabling two smaller vessels to be docked simultaneously, is in full swing. The rehabilitation project falls within TNPA's (Transnet National Ports Authority) contribution to "Operation Phakisa" – the government initiative to unlock the ocean's economy

by investing in infrastructure, skills, and capacity building, to grow the market and in so doing, create much needed jobs.

What is a dry dock?

A dry dock is a narrow basin that can be flooded to allow a load to be floated in. Pumps then drain the dock to allow the load to come to rest on a

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dry platform. Dry docks are used for construction, maintenance and repair of ships, boats and other watercraft. This scenario is applicable to all docks found in South Africa. The Durban graving dock consists of two caissons for inner and outer docking of vessels.

The provision of graving docks in South Africa was dictated by conditions arising out of the First World War which ended in 1918. Ship repair facilities were developed along the South African coastline, with Durban and East London along the east coast and Cape Town along the west coast. No new docks have been built since the last one was built in East London in early 1944. Ship repair firms utilise the facility to repair their vessels.

The dry docks' pump house operational equipment primarily consists of valves, three main pumps and motors, piping, auxiliary pumps, sluice pumps and associated electrical equipment. The operational system and equipment are mainly used to drain the water from the dry dock and pump the water into the sea.

Goss and Balfe is one of the project contractors on the TNPA (Transnet National Ports Authority) project. Our involvement in the project started in December 2020, when AVK Southern Africa was given the opportunity to submit bids on various valves. We formed a business relationship with Goss and Balfe a few years ago while both teams worked on the Simi Tomi project. In May 2021, a team from AVK Southern Africa had surveyed the Durban dry dock pumping station and discovered that the non-return valves and penstock valves originally installed were from Glenfield, part of the AVK Group, based in the UK.

The Glenfield non-return valves and penstock valves were installed in the early 1920's and are still operational and fully functional, almost ninety-eight years later. TNPA (Transnet National Ports Authority) took a decision that the existing cast iron pipework were beyond economical repair and had to be replaced. Also, though fully functioning, the current non-return valves were not compatible with the new pumps being installed and had to be upgraded.



AVK Southern Africa has been operating in the South African market for more than 30 years. We have set the standard for manufacturing valves at the highest levels of quality, reliability, and value. Our highly experienced team has led the industry in manufacturing high quality gate, butterfly, tilting disc, damper, non-return, ball, high mining high pressure cock and diaphragm control valves for the most demanding applications in various industries.

With the forming of AVK the following long standing established local manufactured brands became part of the AVK local manufactured product offering, to name a few:

- Premier Valves established and locally manufacturing since (1954), offering metal-sealed wedge gate valves, butterfly valves, non-return valves and sleeve valves.
- Baker Control Valves established and locally manufacturing since (1975), which have a 4:1 turn-down ratio and various control function options. The diaphragm is reinforced and therefore improves the life span and reduces maintenance intervals reducing costs. Size and pressure ratings varies from DN50-DN500 & PN16 to PN40.
- Gunric established and locally manufacturing since (1989), offering metal seated triple eccentric butterfly valves, step seat damper valves and tilting disc check valves.

Products supplied to the project:

- PVE Boving butterfly valves – rubber lined butterfly valves with aluminium bronze disc operated by manual gearbox and hydraulic actuator respectively.
- IPV ball valves

The Glenfield wedge gates will have to be refurbished or replaced and contractors are engaging with AVK Southern Africa. The required skills and expertise to assist with both options is well within our capabilities.



ORBINOX PRODUCTS IN PORTUGAL'S LARGEST HYDROELECTRIC PROJECT

PORTUGAL

*By Angel Hidalgo,
Hydraulic Works,
Area Sales Manager for Spain,
Portugal and Latam,
ORBINOX Valves International*



The Tâmega Hydroelectric Complex represents the largest hydropower project in the history of Portugal and is one of the European energy sector's most important initiatives of the past 25 years.

Significant increase of national hydropower capacity

The Iberdrola Group has invested more than 1.5 billion Euros in constructing the Tâmega hydroelectric complex in northern Portugal. The project will involve building three dams and three power plants - Gouvães, Daihões and Alto Tâmega - with a combined capacity of 1,158 MW, which will represent an increase of 6% of the total installed electrical power in the country.

The consortium is led by the company Ferrovial Agroman, with participation from local company MSF, and was selected by Iberdrola Group to construct the Daihões dam and

hydroelectric power plant. ORBINOX is the supplier of hydro-mechanical equipment for the bottom outlets.

The FCC Group, an international reference in environmental services, water and construction, has also entrusted ORBINOX with the supply of equipment for the Gouvães dam.

ORBINOX has already commissioned the valves and gates in two of the dams (Daihões and Gouvães). We were selected for this large-scale project thanks to an offer that is technically very solid, and at the same time economically competitive. Also, we have 30+ years of experience in the

management of hydromechanical equipment projects.

The construction work was initiated in 2015, and our products have already been put into active use. All three dams are expected to be operational by 2023.

Products supplied to date:

- Bureau gates
- Fixed cone valves
- Bulkhead gates
- Various safety and regulation valves in auxiliary equipment

SUPPORTING THE GAS CONNECTION DEVELOPMENT

INDONESIA

AVK Fusion Indonesia supplied over 350,000 fittings into Jargas projects last year; an important increase, and the next year looks even more promising.

*By Jack Barnsley,
Business Development Manager,
AVK Fusion Indonesia*



As with the vast majority of countries, the Indonesian economy has been hit by the impact of Covid-19. The Indonesian government, and all those in the gas supply chain, deserve great credit for maintaining the momentum of gas installations in such challenging conditions.

Over the past twelve months, AVK Fusion Indonesia sold electrofusion fittings into nine of the ten Jargas projects. Activity was strongest in 20mm house connections: tapping saddles, couplers, reducers, elbows and transition fittings to connect the polyethylene distribution pipe to the internal galvanised pipework. Other sizes supplied ranged from 63mm up to 180mm.

Exciting times ahead

With good progress already, the next twelve months could be the most exciting yet for Indonesia's challenging gas connection plans. For the last six years, Jargas has been funded and led by the Indonesian government. From August 2021, responsibility will pass to Perusahaan Gas Negara (PGN), a

company quoted on the Indonesian stock market (IDX) and jointly owned by the government and private investors.

Meeting the goal of 4.7m new homes connected to the network

The government has set a target of having 4.7m homes connected to the gas distribution network by 2025. PGN, and its subsidiaries, will help provide the operations capacity to meet this goal.

There will need to be a considerable increase in skilled gas engineers and construction workers to meet the government's aspirations. A parallel growth in specialist plant and equipment will also be required.

AVK Fusion Indonesia has already put in place the training and service capacity to support these requirements. Earlier in 2021 we opened the AVK Fusion Indonesia Service Center. The Service Center calibrates, maintains and repairs the electrofusion boxes supplied by AVK Fusion Indonesia. If required, our engineers can also visit installation

contractors on site to resolve equipment issues. The ability to optimise electrofusion box productivity will become increasingly important as house connection targets rise.

These are exciting times for gas in Indonesia. The government has been very supportive of the sector and continues to set challenging goals. I'm sure that, over time, Java, Sumatra, Sulawesi and other islands will be connected by distribution pipelines to form a national gas 'grid'.

Jack Barnsley is one of two members of the AVK Fusion Indonesia team to be EUSR (Energy and Utility Skills Register) accredited to deliver electrofusion training. Installers trained by the AVK Fusion Indonesia team qualify for a recognised industry certification.

CELEBRATING 80 + 31 YEARS OF SUCCESS

CROATIA



2021 has a very special place in the recent history of OMV-INDOIL, as we became members of the AVK Group.

*By Lucija Matković Ivančević,
Head of Marketing,
OMV-INDOIL*

It is a great privilege to become part of the AVK family and to start this new journey together. Still, it is an obligation for OMV-INDOIL to continue promoting the values that both our brands cherish together. People, family, and tradition are some of the important values that we value the most.

Every year at the beginning of October, we celebrate our work anniversary – this time, 31 years. We make a

toast and thank the past and present employees who placed at least a small part of them in the OMV-INDOIL history.

Therefore, this year our annual celebration was extra special for all of us since we also had an opportunity to congratulate all the employees in the 80-year-old AVK Group for creating such a big success story.

We can all be very proud of the numbers which are here on the cakes, and they motivate us to continue promoting our brands' tradition further.

This champagne is here for all of us to make one more toast to the people, family, tradition... to everything that truly matters.



WHO LET THE DOGS OUT?

USA

*By Anne Paine,
Marketing Manager,
American AVK*

Douglas County let the dogs out in their newly dedicated dog park on Johnson Lane in Minden, Nevada. After several years of planning, Douglas County Parks and Recreation were able to get a much-needed dog park for the area. American AVK was approached to donate two hydrants for the park, and we jumped at the chance to be involved in the project.

The hydrants were then painted and decorated by the local Pinon Hills Elementary School students and installed in the new park for all to enjoy. I think we even got a “two paws” up review by the local dogs.

The dog park boasts an acre of lawn, young newly planted shade trees, and water stations for thirsty dogs. Dog waste collection stations are also provided for dog owners to help keep the park clean after their dogs have had a call to nature.



A YEAR OF APPROVALS TO AVK SAUDI

SAUDI ARABIA

Since AVK Saudi inaugurated the new factory in Jeddah for production of butterfly valves and fabricated fittings last year, the focus has been on ensuring that the factory and products are approved and listed with the main water authorities in the Kingdom of Saudi Arabia.



*By Mohammed Hamad,
Head of Product Management &
Export,
AVK Saudi Valves Manufacturing*

There has been a lot of efforts from everyone in the organisation to ensure compliance with local standards, preparation for visits, audits, as well as evaluations. Despite Covid-19 travelling and gathering restrictions, AVK Saudi managed to host end-client's audits either online or in person, when restrictions were reduced.

All these efforts resulted in obtaining the approval from the National

Water Company (NWC), which is valid until 2025. AVK is the first valve manufacturer to obtain such a long-term approval, compared to the standard 2 years period that NWC normally provide to its vendors.

Also, AVK Saudi is now approved by Saline Water Conversion Corporation (SWCC), who is the world's largest desalination company, for all the locally produced products in both the new and old factories.

Most importantly, we have obtained the approval for our local produced butterfly valves from Aramco, which is the biggest oil & gas company globally.

They are absolute front runners when it comes to securing that suppliers are complying with the Saudi governments demand for localisation and were the main driver for AVK to invest in a new local factory.

The approval process was obtained after a thorough audit regarding the quality, technical and manufacturing capabilities of the new AVK Saudi factory and that of Wouter Witzel. The teams from both factories in Holland and Saudi have worked closely together and done a fantastic effort to secure this approval.

In addition to the above-mentioned clients, AVK Saudi also managed to obtain the approvals of SABIC, MAADEN, Royal Commission, Marafiq and many other big players in the Kingdom of Saudi Arabia.

The market feedback is positive regarding our services and product quality, which will ensure a continuous growth in the business of AVK in Saudi, supported by all the initiatives to increase the localisation and local commitment from AVK to the Middle East region, particularly to Saudi Arabia.





























A LONG HISTORY OF PRODUCT DEVELOPMENT

GLOBAL

Back in the 1950s, Aage Valdemar Kjær introduced a 10-year warranty on his products, because he could vouch for their long-lasting quality.

In 1970, his son, Niels Aage, developed the first resilient seated AVK valve for water supply, and for more than 50 years, AVK has developed high quality valves and other products and is

TIMELINE

1941-1969	1970-1979	1980-1989
 <p>S.H. 1/2-3/4-1 H.K. AVK KØLEMASKINER</p> <p>Semi-hermetic compressor</p>	<p>01 Socket gate valve</p>  <p>02 Flanged gate valves, long DIN F5</p>  <p>03 Service connection valves</p>  <p>04 Accessories for valves</p>  <p>05 Combi Flange</p>  <p>06 Flanged gate valves, short DIN F4</p>  <p>08 Handwheels for gate valves</p>  <p>09 Fire hydrant, above ground</p>  <p>Rubber gaskets and seals</p> 	<p>11 Service Connection Angle Valve</p>  <p>30 Spring Hydrant</p>  <p>25 Gate Valve</p>  <p>21 Flanged Gate Valve</p>  <p>15 ISO top flange Gate Valve</p>  <p>33 Gate Valve socket ends</p>  <p>24 Wet barrel hydrant</p>  <p>37 Metal Seat gate Valve</p>  <p>Tool holders for the metal working industry</p>  <p>32 Gate valves with spigot ends</p>  <p>Tooling Machined parts</p>  <p>36 Gate Valve with PE Pipe ends</p>  <p>Flonidan Gas Meter</p>  <p>38 Gate Valve Flanged/PE Pipe ends</p>  <p>18 AVK flexible combi-cross</p>  <p>29 Underground hydrant</p> 

recognised as one of the world leaders in the business.

"To be able to make a reliable product that meets or exceeds the expectations; that means a lot to me and to AVK. We do not compromise on quality" (Niels Aage Kjær, 2021).

Our products are made in modern factories using high technology, computerised machining centres, and robots for precision and uniformity.

Many years of experience and use of advanced technology for machining, coating, assembling, testing, and handling have resulted in top quality and innovative products that comply with the most common national and international standards as well as national approvals.

Within all three business units Water, Advanced Manufacturing, and Industrial, we focus on developing products that can contribute

positively to sustainable development. Traditionally, we have had a strong focus on innovation and development of new and optimised products of high quality and with a long lifetime and recyclability.

The below product overview proves that AVK has developed a wide and impressive product programme within all our businesses over time.

Please note we are not able to include all products in the timeline. We have tried to include the main products with the purpose to illustrate the impressive history of product development in the AVK Group during the last 80 years. Products from acquired companies are included from the year AVK acquired the company (and thus not the year the product was developed).

1990-1999	2000-2009	2010-2021
<p>78 Above Hydrant Q-Transportmateriel</p> <p>78 Float Valve</p> <p>27 Dry barrel fire hydrant, AWWA</p> <p>16 AVK service connection valve (POM/Brass)</p> <p>41 Swing check valve</p> <p>60X Supa® Coupling Range</p> <p>80 Plastic Surface Boxes</p> <p>27 Repair clamp</p> <p>51 Ball Valve</p> <p>727 REWAG products, Swic Tapping Saddle</p> <p>Series 46 steel valves for gas</p> <p>55 Flanged gate valve, resilient seated, large diameter</p> <p>265 Dismantling Joint</p> <p>Donkin Series 555 Cast Iron Gate Valves</p> <p>57 Gate Valve</p> <p>150 Donkin Slide Valve</p> <p>53 Ball Check Valve</p> <p>45 Resilient seated gate valve with flanged/ grooved ends</p> <p>253 SUPA® COLLAR Repair Clamps</p> <p>34 Wall & Indicator Posts</p>	<p>IPS Parts</p> <p>712 Fittings</p> <p>84 Above ground hydrant</p> <p>75 centric butterfly valve - vulcanized</p> <p>35 Underground fire hydrants</p> <p>851 Air Valve</p> <p>85 PE ball valve CERTUSTM</p> <p>54 Flanged gate valves</p> <p>855 Vertical Sleeve Regulating Valves</p> <p>62X Supa PlusTM couplings</p> <p>66 Gate Valve Pipe ends</p> <p>857 Free Discharge Valve</p> <p>Volvo Penta IPS parts</p> <p>756 Double eccentric butterfly valve</p> <p>67 Post/Flushing Hydrant</p> <p>343 JCH Ball Valve</p> <p>65 AWWA C515 ductile iron gate valves</p> <p>718 Ductile Iron Fitting</p> <p>856 Submerged Discharge Valves</p>	<p>161 InterApp Butterfly Valve</p> <p>908 Manual Balance Valve</p> <p>Repico Repair Coupling</p> <p>Smart Hydrant Caps</p> <p>859 control valves</p> <p>910 Strainers</p> <p>Data logger Hydrants</p> <p>Remote pressure reading</p> <p>240 liter wastecontainer made of HDPE and COPP</p> <p>765 Cast iron and Aluminium gearboxes</p> <p>AVK Tooling Thread Insert</p> <p>815 Concentric butterfly valve</p> <p>89 fusible butterfly valves</p> <p>820 Butterfly Valve</p> <p>879 Hydraulic Control valves</p> <p>820 Buttery Valve</p> <p>SUPA MAXI™ range</p> <p>903 Silent Check Valve</p> <p>772 Penstock Valves</p> <p>820 centric butterfly valves</p> <p>702 Knife gate valve</p> <p>Remote airvalves</p> <p>Hand holding a smartphone displaying a mobile app interface.</p>

AVK INTERNATIONAL “EAST 1” PRODUCTION SITE READY TO MEET THE FAST- GROWING DEMAND

DENMARK



*By Anna Dahlmann Møller,
Marketing Coordinator,
AVK International A/S*

Over the past 12 months AVK International’s “East 1” site located in Skovby, Denmark, where gate valves with PE ends and extension spindles are manufactured, has gone through a comprehensive transformation. The building has been almost doubled in size, and the entire production flow is now laid out according to the LEAN mindset, enabling us to meet the growing demand and react fast to customer requests.

Extended site allowed for optimised storage

The continuously increasing demand for extension spindles and gate valves with PE ends called for more production and storage space to enable restructuring and expansion of production processes. Our East 1 production site was therefore expanded with another 1900 m³, which now gives us a total floor area of 4200 m³.

One of the most important improvements is the optimisation of our storage facilities. The process started with an assessment of logistics and flow of materials to identify and eliminate non-value-added activities. We created a new layout for the storage facilities so that materials would move logically throughout the facility, increasing manufacturing efficiency and reducing material-handling operations. The restructuring of the warehouse and the improved storage capability provided

an immediate improvement of our productivity, as we achieved a smooth flow of materials throughout production processes and a reduced order completion time.

Optimised production equipment

We have also optimised our production equipment. This has resulted in

Article continues on the next page >

renovation and enlargement of existing machines as well as brand new machines.

Among the new machines is a pressure testing machine for gas valves. The old one was often a bottleneck, and now with twice the capacity, we have obtained the ideal flow. Furthermore, we replaced the manually driven roller conveyors with automatic conveyors.

The PUR coating cell was renovated and enlarged, so we now have doubled our capacity here as well, and we are currently working on an overall optimisation of our extension spindle robot cell.

The extra production capacity will allow us to reduce product delivery times and improve our customer service.

Incorporation of the LEAN mindset

We started our LEAN transformation with documenting and analyzing our existing processes based on the Kaizen method. The core philosophy of Kaizen is simple: "You can always make or do things better, even if they seem to work well!" All employees were actively involved in the LEAN transformation process and most of them have completed a LEAN 3C problem-solving course.

"I do not see problems, I see challenges. All the big challenges we are facing are opportunities to bring out solutions, to grow, to challenge the status quo and to create value." – Ina Dorfman

We focused on making continuous, incremental changes - as we believe that over time, the small incremental changes in any process add up to significant improvement.

We initiated the process of implementing TPM (Total Productive Maintenance) to ensure that our equipment continues to run smoothly without unexpected downtime.

We focused on establishing and improving the production flow, which is not about increasing the pace of work but about reducing or eliminating waste. Examples of eliminated waste are people awaiting information or raw materials, excess motion due to



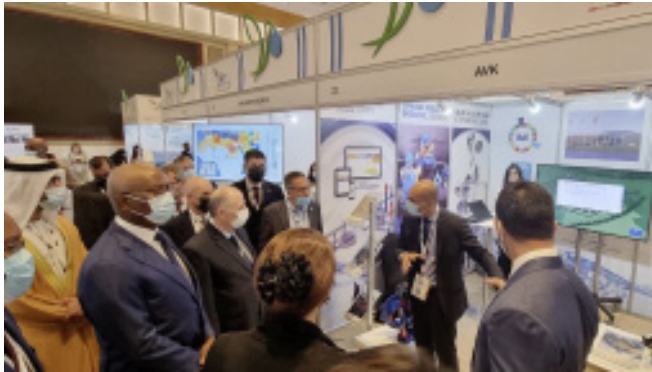
poor workstation layout or shared equipment, and excess production.

employees, more focus on quality and increased productivity.

Today we have a new factory floor layout with more efficient processes and material flow and consequently we have achieved a smoother workflow, improved safety conditions for

EVENTS GALORE: SUSTAINABILITY & SMART SOLUTIONS IN FOCUS

UAE



AVK Gulf showcased the benefits of smart water and non-revenue water solutions in three major events across Dubai.

*By Anurima Roy,
Regional Marketing Manager,
AVK Gulf DMCC*

Danish Sustainability Days at the Danish Pavilion EXPO 2020 & WETEX Exhibition – 5-7 October, 2021

Dubai welcomed visitors from various parts of the world to what was - by far - the emirate's most ambitious project and the first ever World Expo to be held in the Middle East, North Africa and South Asia region hosted by an Arab nation.

Under the overarching theme of sustainability and innovation, The Royal Danish Consulate and The Confederation of Danish Industry welcomed local and international stake holders, decision makers, keynote speakers and VVIPs from local authorities and organised a Danish Sustainability Workshop. The Danish General Ambassador, Mr. Franz-Michael Skjold Mellbin, inaugurated the pavilion on the 5th of October within a warm audience.

This meant unique networking opportunities, and as a member of the Water Efficiency Middle East Alliance

(WEMA) we were delighted to be a part of this one-of-a-kind ceremony.

During the three-day workshop, we were thrilled to meet with the water authorities Etihad Water & Electricity, Abu Dhabi Sewage Service Company, Dubai and Sharjah Municipality and Ras Al Khaimah Wastewater Authority to present our capabilities within e.g. pressure management and smart solutions towards reducing non-revenue water. It was an important step in our efforts to bring Danish water solutions to the United Arab Emirates as industry experts in the water business.

One of the highlights was the signing of a MoU (memorandum of understanding) between Abu Dhabi Sewage Service Company and NIRAS (Danish engineering consultancy company) on behalf of the WEMA to further initiate new partnership and collaboration between both parties showcasing how we can build a greener and more sustainable future for the next generations together.

WETEX

Our local partner, DUTCO Tenant LLC, display our AVK smart water and portable water product solutions at WETEX, the largest Water and electricity exhibition in the Middle East

to build a sustainable future for the Emirate.

Arab Water Forum – 21-23 October

Organised by the Arab Water Council, the 5th edition of Arab Water Forum was held under the patronage of the Ministry of Energy & Infrastructure, the League of Arab States (LAS) and the Ministry of Water Resources and Irrigation of Egypt (MWRI), in collaboration with national, regional, and international partners. A three-day forum and Expo focusing on the critical water challenges that are affecting the Arab region today, driving the three primary goals for better water security, water for sustainable development and transboundary water. As a part of the opening ceremony and an introductory walk around the forum, the Minister of Energy and Infrastructure, Minister of State for Food and Water Security, UAE and the Secretary-General, League of Arab States, visited us for a brief introduction to our solutions. During these three days, we showcased our non-revenue water and smart pressure management solutions in our efforts to respond to the real-time challenges of supply management in the region. We were excited to receive a great response to our smart solutions and are looking forward to the future collaboration.

SERVICE CENTER TO OPTIMISE CUSTOMER SATISFACTION

INDONESIA

To make our customers worry-free, we have topped up our after-sales service by launching the AVK Fusion Indonesia Service Center.

*By Ahmad Fairu Zabadi,
Marketing Manager,
AVK Fusion Indonesia*

With the increasing number of customers and business growth, PT AVK Fusion Indonesia took the initiative to further complement its after-sales service by providing improvements in the maintenance of AVK Fusion products that have been used.

“The purpose of launching the Service Center is to provide better after-sales services. We realise that as the company and our customer base grow, the more we need after-sales service that can provide the necessary solutions,” - The President Director of AVK Fusion Indonesia, Gert Borrits.

The Service Center provides various spare parts for each product line as well as repairs such as calibration etc. The service also includes experts who can be sent out directly to overcome various obstacles faced by our customers.

On-site and remote service

AVK Fusion Indonesia Service Center is not only limited to physical services



but also remote such as discussions and consulting with a team of experts through the AVK Fusion Indonesia call center hotline. The facility is equipped with barcode scanners that e.g. are used to find out how long it takes to finalise installation.

“The Service Center provides after-sales services that make it easier for customers, both in terms of time, distance, and efficiency. We will ensure that any problem can be quickly resolved by our team”, says Gert.

With the Center, we aim to meet the needs of customers throughout Indonesia and believe that this will help our company to continue to grow and thrive. The launch of the Center was covered by several national media.

STATE-OF-THE-ART TREATMENT TECHNOLOGY IN NEW WASTEWATER PLANT

FINLAND



AVK Finland Oy delivered over 500 valves and actuators for the new wastewater treatment plant built for the city of Mikkeli.

*By Nino Tuovinen,
Area Manager & Industrial*

and

*Jouni Viinikkala,
General Manager,
AVK Finland Oy*

Energy-efficient wastewater treatment underground

The new wastewater treatment plant is a part of the Metsä-Sairila development plan, which also includes other business-, research-, and development facilities related to circular economy.

The plant is situated underground, in the bedrock, and it is one of the most modern plants in Europe and in the world. Its state-of-the-art treatment technology will help to preserve the water quality of adjacent water areas and the famous lake Saimaa.

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The underground plant reduces the environmental impact and leaves the above-ground area free for other purposes. Only the necessary exits and vents remain visible on ground level.

AVK valves play a major role in the project

AVK Finland Oy was chosen as suppliers of valves for the new plant, altogether more than 500 valves and actuators in various different sizes.

Products supplied to the project:

- sluice valves
- ball valves
- hose valves
- resilient seated gate valves
- check valves
- globe valves
- diaphragm valves
- segment valves

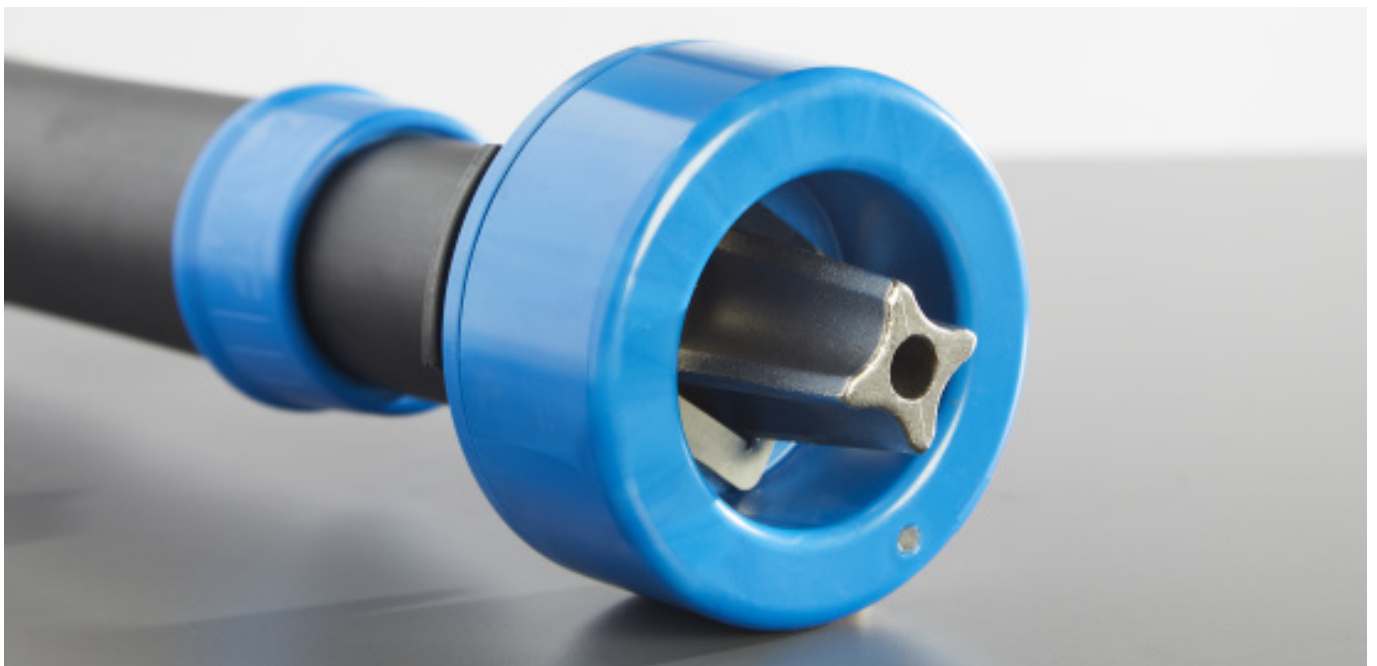
In addition, AVK supplied sluice-, swing check-, gate- and ball valves with handwheels or actuators to the main wastewater pumping station in Kenkäveronniemi, as well as penstocks, flange adaptors, air valves and gate valves with handwheels or actuators for utility chambers.

“We are happy with the quality of AVK’s valves, penstocks and fittings and the good cooperation with AVK Finland Oy” - Reijo Turkki, manager of Mikkeli Waterworks.



SMART POSITION INDICATOR FOR GATE VALVES

GLOBAL



Valves and their position status are important to know, as there are certain valves that should stay in either a fully closed or opened position. There are several reasons why it is important; but ultimately, utilities need to know because they aim to ensure a fully functional water distribution network to keep consumers satisfied.

*By Ida Kirstine Rohde Mikkelsen,
Marketing Coordinator,
AVK Smart Water (AVK Holding)*

If a valve is partly opened or closed, utilities can risk insufficient measurements from e.g. pressure measurements from pumps or flow meters in the network, and eventually the insufficient measurements can affect the water supply for consumers.

How can a partly opened valve influence other measurements?

When dividing the network into sections or so-called District Metered Areas (DMAs), water utilities invest in other measurements like flow and pressure to control and reduce the level of Non-Revenue Water (NRW). However, if the boundaries of the DMA or sections are not 100% leak-tight, the flow and pressure measurements are worthless, as they will provide the water utility with misleading data.

From assumption to knowing for sure

Ideally, all valves in a distribution network should be digitally monitored on a regular basis to get the full overview of the network. However, it is most important to monitor strategic and critical points in the network, such as boundary valves between two DMAs, as these valves affect the

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overall operation and functionality of the network.

By installing the VIDI Positioner, water utilities get reliable information about the position of valves in the network.



Due to the open/close feature in the device, it will detect and send data about the exact position of the valve.

With reliable information about whether critical valves are 100% leak-tight,

water utilities can optimise daily operation of the distribution network, extend lifetime of assets, and perform efficient reduction of water not accounted for.



HEALTH AND QUALITY OF LIFE ON THE AGENDA

BRAZIL

To keep our employees healthy, we partnered up with a sports consultancy called MIGUEL SANCHES. They will assist our employees in obtaining a more active life style through work-outs, cycling, running and outdoor exercises.

*By Juliana Cristine Celestrim,
Marketing Assistant,
AVK Válvulas do Brasil*

A new approach

The global pandemic has increased the general focus on health and well-being, and we invited all our employees to a

lecture on the benefits of incorporating training and physical activity in our lives.

Our employees can then join training sessions which will take place in three town squares here in the city of Sorocaba, where AVK Válvulas do Brasil is located.

Important goals

Physical activity is one weapon we can apply to increase our immunity against e.g. viruses and sickness in general. This is a goal in itself, but being active and healthy is also adding quality and purpose to our everyday life. Therefore, we feel that the initiative can benefit our employees and at the same time our organisation. We want to be active in our local community and raise awareness, so people know that



we are here and make an important difference.

A bit of brand disclosure

In return, the consultancy company will be promoting our brand in events held by them. In racing and cycling competitions, our logo will be displayed on t-shirts, cars, and banners at events, as a way to promote the AVK brand and recognition.

METAL SEATED GATE VALVES IN AWARD-WINNING RESERVOIR PROJECT

SCOTLAND



Aerial image showing the four temporary siphon pipes

By Greg Morris,
Business Development Manager –
Dams, Reservoirs & Hydro,
Glenfield Invicta

Glenfield Invicta has supplied valves, actuators and gearboxes for a fascinating project on a reservoir that carries the name of the engineer who designed it.

Scotland's terrain and preponderance

Although Scotland's population accounts for only 8% of the total UK population, it has almost a third of the total landmass. The wet and mountainous terrain that covers much of Scotland, along with its preponderance of lochs ('lakes' or 'fjords'), makes it an ideal location for dams and reservoirs. Scotland also hosts more major hydropower projects than any other area of the United Kingdom.

Scottish Water is the largest owner of registered reservoirs in the UK

The Reservoirs Act 1975 requires all large-raised reservoirs to be registered. Registration brings with it various obligations, including regular inspections by a Reservoir Panel engineer.

Scottish Water, the public utility which provides water and wastewater services to Scottish homes and businesses, owns 270 registered reservoirs; it is the largest owner of registered reservoirs in the UK. One aspect reviewed by a

Reservoir Panel engineer is the rate of reservoir drawdown. Drawdown refers to the evacuation of water from a reservoir for maintenance, safety and emergency requirements. Several high-profile incidents across the UK, and the general ageing of the nation's stock of reservoirs, has led to a greater focus on draw down capacity, with new guidelines issued in 2017.

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Drawdown and flood discharge are key areas of focus for Scottish Water

Scottish Water has embarked on a 'Reservoir drawdown and flood discharge enhancement programme'. Drawdown can be achieved by a number of methods including a conduit (pipe/tunnel) passing through a dam embankment, a siphon that 'siphons' water up and over the dam wall, and spillway weirs. Glenfield Invicta specifies, supplies and installs a wide variety of AVK valves into reservoir projects including reservoir-specification gate valves, scour valves, discharge valves and penstocks.

Loch Thom: its history

The Loch Thom reservoir is located south of Greenock some 25 miles west of Glasgow. It was constructed between 1825 and 1827.

The earth embankment that holds back Loch Thom is about 20m high and contemporaneous records state that the embankment was built in layers of puddle peat alternating with gravel, '...beaten together with wooden dumpers until completely mixed.'



Loch Thom is unusual in that it is named after the engineer who designed it: Richard Thom. Its principal function when first built was to power water wheels for a number of local industries including a paper mill, woollen mill, sugar refinery, foundry and shipyard.

A solution to increase discharge capacity

A Section 10 inspection report for Loch Thom Reservoir in 2013 recommended that the discharge capacity of the tunnel outlet and the associated drawdown capacity be verified.

Consequently, in 2016, consulting engineers Mott MacDonald undertook

a drawdown feasibility study. The study identified that the existing discharge capacity was insufficient.

The proposed solution was to install a supplementary three-pipe siphon arrangement to provide the required additional drawdown capacity. Each of the three siphon pipes were specified as 1100mm tapering down to 900mm. The required flow rate through each siphon line was 5m³/s.

Specifying the optimal valve

Glenfield Invicta worked with Mott MacDonald to optimise valve selection for the siphon lines. The valves were to be installed on the 900mm diameter pipe section where the flow velocity was to be 7.9m/s. This velocity exceeds the maximum recommended flow velocity for standard gate valves. For example, the recommended maximum flow velocity for a PN16 rated gate valve is 4m/s as per BS EN 1074.

After reviewing the system details and the proposed valve application, Glenfield Invicta recommended the use of its Series 54 'reservoir-specification' metal-seated gate valve.

Supply and installation

In total, Glenfield Invicta supplied six x DN900 Series 54 gate valves, and one x DN500 Series 54 gate valve on the



Merger of Glenfield and Invicta creates an engineering powerhouse

In October 2019, two AVK UK Group companies, Invicta and Glenfield merged to form Glenfield Invicta. One of the key drivers for the merger was to take advantage of significant growth opportunities in their shared core markets: dams, reservoirs, hydropower and environmental engineering.

Series 54 reservoir-specification gate valves installed behind the siphon bulkhead.

Article continues on the next page >

principal Loch Thom project works. The valves were supplied with spur gearboxes and electrical actuators. Glenfield Invicta service engineers were on site to assist with the installation of the gearboxes and actuators.

Alongside the principal works, a temporary four-pipe siphon arrangement was installed. The temporary siphon was constructed using 180mm polyethylene pipe and fitted with AVK Series 01/79 innovative socketed resilient seated gate valves with integral tensile end load restraint adaptors. Once the temporary siphon was no longer needed, the valves were cut out for use on future schemes.



Series 01/79 gate valves being cut out of the temporary siphon lines for use on future projects.

Award-winning innovation

The team leading the Loch Thom project has recently received the Innovation Award at the 2021 Scottish Civil Engineering Awards. The project has also been recognised by the Scottish Parliament.

The crucial aspects

Glenfield Invicta believes in continuous improvement across all areas of

its business. A key element in this approach is extracting key points from each project it undertakes.

In the case of Loch Thom, there were three key points. Firstly, specifying the correct valve is fundamental to the success of drawdown and discharge projects. Secondly, at Loch Thom high flow rates meant standard gate valves were unsuitable, and Series 54 reservoir-specification gate valves

provided the optimal solution. Finally, the involvement of the Glenfield Invicta site engineering team contributed to the success of the project.

Greg Morris is Glenfield Invicta's Business Development Manager Dams, Reservoirs & Hydropower:

'It was extremely important to discuss the exact requirements for the valves being used on this critical section of the project. Glenfield Invicta had detailed discussions with the consulting engineers on flow rates, and it was these discussions that allowed us to confidently identify the optimum valve specification for this application.'

Series 54 reservoir-specification gate valves

Glenfield Invicta has developed a specialist reservoir-specification for gate valves to accommodate the operating parameters required on reservoirs which can be onerous. For example, the seat and body rings in the gate valve have to be screwed and pinned to be able to accommodate considerable flow velocities that are well in excess of standard water systems.

To develop the reservoir-specification, Glenfield Invicta took the standard AVK Series 54 metal seated gate valve as its starting point and developed an enhanced design. Key features include:

- Aluminium bronze shoes and channels result in a very tight and continuous tolerance between the body and wedge throughout the valve stroke. This reduces potential vibration and fatigue damage. It also reduces bearing stresses on the contact areas as well as improving the alignment and sealing performance of the valve. Operational torque requirements are lower due to the reduced friction coefficients.
- The addition of a jacking screw (or two on certain sizes) at the base of the valve allows a direct axial thrust to be applied to the base of the wedge. If the valve has been closed for long periods of time, it can become increasingly difficult to operate. Rotating the jacking screw 'pushes' the base of the wedge up a small distance, sufficient to 'crack' the valve out of its seated position; normal operation of the valve from the valve stem can then be carried out with ease. The jacking screw also acts as a mechanical stop which prevents over-travel of the wedge which can cause considerable operational issues with metal seated gate valves.
- Stainless steel fasteners and stem, and an increase in coating thickness, combine to prevent corrosion and increase the valve's operating life.

Series 54 reservoir-specification gate valves installed behind the siphon bulkhead.



NEW BMW PRODUCTION FACILITY TO BE ESTABLISHED IN HUNGARY – WITH AVK VALVES

HUNGARY

BMW has announced their plans for a new facility to be built near the town of Debrecen in Hungary.

*By Tamás Bedegi,
Promotion Consultant,
Hungary*

The new BMW production facility is a total investment of €1 billion and will have a capacity of about 150,000 cars a year. The facility will provide more than 1,000 new jobs as well as numerous jobs created at suppliers and service providers in the local region. Europe is BMW's most important market accounting for about 45% of its vehicle sales, and the location in Debrecen was chosen because of advantages such as proximity to an established supplier network and excellent infrastructure.

"The BMW Group's decision to build this new facility reaffirms our perspective for global growth. After significant investments in China, Mexico and the USA, we are now strengthening our activities in our home continent, Europe, to maintain a worldwide balance of production," Harald Krüger, Chairman of the BMW AG Board of Management.



The new facility in Hungary will be able to manufacture both conventionally as well as electrically powered vehicles – all on a single production line. BMW states that the facility will set new standards in digitalisation, sustainability and flexibility.

AVK has delivered valves for the fire protection and gas supply installations at the new facility. For the first phase of the project we have delivered 20

pcs DN500 and 15 pcs DN350 UL & FM approved flanged gate valves with post indicator flanges as well as 23 pcs DN50-200 gate valves with PE pipe ends for gas supply.

In the near future, an additional batch of UL & FM approved DN500 gate valves will follow, and by the end of 2021 we will also deliver post indicators for the valves.

ENVIRONMENTAL DECLARATION FOR OUR GREEN FOUNDRY

DENMARK

Randers Jernstøberi A/S has existed since 1916, and until 2002, cast iron products were produced here in Randers. Today it is a trading company responsible for the sale of manhole covers – better known as manhole covers - to the Danish market.

*By Michael Ramlau-Hansen,
Public Affairs,
AVK Holding A/S*



The products are now produced at our parent company in Norway, where we have a modern foundry that is run solely on hydropower, and thus sustainable renewable energy. It gives us some benefits in the form of climate certificates that contribute positively when it comes to our impact on the climate. In this way, we can also help fulfill our customers' wishes to become CO2 neutral at all levels by 2050. As the only producer of well goods, FURNES and Randers Jernstøberi can present a "Environmental Product Declaration", EDP - a type III environmental declaration.

An EPD is documentation of the environmental impact of a building material. It is the manufacturer of the building material who has the EPD prepared, and it is then independently verified by a third party.

The requirements for EDP environmental declaration are specified in accordance with ISO 14025. An EDP is made on the basis of a life-cycle analysis (LCA) according to ISO 14040 - 14044. This ensures a standardised environmental information within the same product category, which compares products regardless of region or country, and which ensures

environmental information according to four requirements: Objectivity, comparability, credibility and addibility.

On the 1st of July this year, Randers Jernstøberi moved into new modern premises of more than 3,000 m² close to the main highway in Jutland, Denmark, giving us significantly easier access and exit conditions for goods transport. In April 2019, FURNES Jernstøberi A/S was taken over by AVK Holding A/S, and thus Randers Jernstøberi has returned to Danish hands.

NIELS AAGE KJÆR AND AVK RECEIVES THE BUSINESS DEVELOPER AWARD

DENMARK

On November 9th, AVK hosted ErhvervSkanderborg in connection with this autumn's membership event and the awarding of the Business Developer Award 2020. The award deservedly went to Niels Aage Kjær, who has headed the AVK Group for more than 50 years, and who has thus contributed with positive growth both in and outside Skanderborg Municipality.

*By Pernille Kjær,
Corporate Communication & Learning
Director,
AVK Holding A/S*

The event took place at the AVK Academy & Visitor Center in Skovby, where about 80 participants from ErhvervSkanderborg participated.

Niels Aage Kjær himself was unfortunately prevented from participating in the event, as he had tested positive for covid-19. On behalf of Niels Aage, Pernille Kjær told the story of AVK, which this year celebrates its 80th anniversary, and AVK's contribution to sustainable and green development.

Following the story of AVK, meteorologist Jesper Theilgaard spoke



about “climate and business”, which was about climate change and the challenges it entails in society, while for many companies it also offers opportunities for growth and initiatives in a broad range of areas. Michael Ramlau-Hansen from AVK highlighted the need for more attention to water in the ongoing energy production debate.

Anne-Mette Kjær received the award on behalf of her father. She emphasised that Niels Aage was sorry that he was not able to participate, and that he is very proud: “I am very proud and happy to receive the Business Developer Award. It is a recognition that means a lot to me, but also a recognition that has great significance for the family and for AVK's many talented employees.”

About the Business Developer Award

Every year, ErhvervSkanderborg pays tribute to the positive contributions to local development and growth. This is done through the Business Developer Award, an association founded back in 2008.

The Business Developer Award is given to “an individual, a company or an organisation / association that deserves recognition and honor for having made an effort that contributes to development in Skanderborg Municipality”.

Members propose individuals or companies for the award. The board of ErhvervSkanderborg then nominates three of the nominees, and the members vote on which of them should win the prize.

EXPORT INITIATIVES TO BOOST ECONOMIES AND GLOBAL GREEN TRANSITION

DENMARK

On the 5th of November, the Danish government published an ambitious export strategy for water technology. A long-anticipated move that is expected to double the export (to 40 billion DKK) by 2030.

*By Michael Ramlau-Hansen,
Public Affairs,
AVK Holding A/S*

The Danish water industry has long anticipated strengthened export efforts, not only for the benefit of national exporters, but equally as part of a desire to support our UN goals; especially in providing proper water for more people, and to get more foreign governments to see the possibilities in wastewater treatment and utilisation.

The export strategy must also be seen in the context of the challenges of complying with the EU's revised Drinking Water Directive, which talks about water waste, healthy drinking water for all and about having a risk assessment carried out on water infrastructure, which is, of course, rightfully part of a critical infrastructure. Water is one of the most important things we have, because without water, whole communities are falling apart.



Engaging local action through aid packages

At the same time, there is talk of getting Europe restarted after Covid-19 with the help of various aid packages. The EU has thus released €750 billion for this reboot, and the funds are earmarked for green transition initiatives only. Making Europe's water infrastructure sustainable is indeed necessary when considering green transition. Therefore, the new Danish export strategy for water focuses on the EU countries that face the greatest challenges, and therefore also receive a big share of the restart funds, officially referred to as REACT-funds.

In addition to the EU, the export strategy also focuses on the US and India, and thereby supports already ongoing activities. In India, the Indian and Danish governments have reached an agreement - the "Green Deal" - to support India's green transition.

In the United States, the 5-years-and-counting WTA alliance (Water Technology Alliance) is extended and strengthened in cooperation with California and Texas.

Appointed water specialists at the Danish embassies

The Danish government has set aside 60 million DKK to carry out the export strategy, including to establish and strengthen appointed "water specialists" in the selected markets. The specialists will be located at the respective Danish embassies, and resources have been allocated to make sure foreign delegations can visit Denmark and learn about our sustainable water solutions.

In this connection, funds have also been set aside to establish a lighthouse project, which will be carried out within the newly established Water Valley Denmark in East Jutland.

NEW GATE VALVES FACILITATES A COMBINATION OF THREE GREAT DESIGNS

DENMARK



We are pleased to introduce our new range of gate valves where two great AVK connection designs are combined. The Supa Maxi™ universal tensile coupling end connects to any pipe material and the PE pipe end enables direct welding into PE pipelines.

*By Lene Mark,
Head of Marketing,
AVK International A/S*

The new gate valve offers a compact, flexible and easy transition from any pipe material to a boltless electro welded PE pipe connection. It offers angular deflection and full tensile resistance, eliminates the need for extra bolts, gaskets and couplings and in this way facilitates a fast and safe installation with built-in shut-off.

The Supa Maxi™ universal tensile coupling end features the patented SupaGrip™ sealing support system with a flexible bracket providing superior tightness and tensile resistance on all pipe dimensions and materials. Furthermore, it features ease of installation with no need for re-tightening the bolts, high-quality materials – and much more.

The PE pipe end offers a valve/pipe connection that is as strong as the pipe itself thanks to the premounted standard PE pipe.

The valve itself is of the renowned AVK gate valve design with our unique wedge and corrosion protection and all the other great standard features. Our new series 638 gate valves with Supa Maxi™ end/PE end are available in DN80-300 with black/blue PE100 pipe end in two variants – SDR11 (PN16) and in SDR17 (PN10). More details are found on www.avkvalves.eu/news

The new valve range complements our existing range of gate valves with PE ends as well as our existing range of Supa Maxi™ couplings, flange adaptors, end caps and valves.

AVK KNIFE GATE VALVES INSTALLED IN LARGE PIPE SYSTEM FOR SLURRY

DENMARK



*By Martin Munk Pedersen,
Sales Manager,
Vatech 2000*

Degassing slurry in a biogas plant before it is spread in the field means, among other things, less odor nuisances, higher fertilizer value and less impact on climate.

A Danish farmer running a large pig farm and a biogas plant have invested DKK 14m in a pipe system to transport the slurry from local farms to the biogas plant and back to the fields where the degassed slurry is to be spread out. Knife gate valves are installed on manifolds between the farms and the biogas plant to ensure that the slurry is transported to the right places. Joint control of the valves ensures that they automatically open and close, so that the slurry can be pumped in both directions in the system.

Pipe system for transporting slurry reduces traffic load

The fact that the farms are connected to the new pipe systems saves both time and operating costs. In addition, establishment of the system will also reduce the traffic load and the challenges related to this. Slurry tankers no longer need to drive back and forth between the farms and the biogas plant, and by establishing buffer tanks and taps at the fields, the need for driving back and forth between the

Article continues on the next page >

fields and storage tanks on the farms is also minimised.

Approximately 20 km of pipes connect ten farms, a pumping station and the biogas plant, which processes up to 160,000 tons of biomass per year, and the pipe system results in a significant reduction of the traffic load.

Degassing results in less impact on climate and less odor nuisances

Slurry is pumped from the farms for degassing in the biogas plant, and then it is pumped back to the farms for storage in tanks directly by the fields. Degassing slurry before spreading out has several advantages. The degassed slurry provides a higher fertilizer value and results in less odor nuisance and reduced methane emissions. Methane

is a greenhouse gas that negatively impacts the climate far more than CO₂, and thus the degassed slurry has less impact on climate.

Pipe system with 26 pcs. DN200 knife gate valves

The pipe system is dimensioned with 200 mm PE pipes and for a maximum pressure of 10 bar. Vatech 2000 has delivered 26 pcs. DN200 AVK knife gate valves with LINAK actuators (incl. motor/signal cables) for the project. Electrical actuators have been chosen because the valves are installed over a large area, and they allow for feedback modules providing an overview of the actuator settings.

The pipe system allows transport of slurry from farms to biogas plant and back again, and opening and closing



of each individual valve is automatically controlled, ensuring that the slurry is pumped to the right places at the right times.

FESTIVE SPIRITS ACROSS THE AVK GROUP

CHINA

Being able to celebrate 80 years of amazing development makes us proud of being AVK employees. On September 23 and 24, AVK Shanghai held an annual sales seminar and celebration dinner to celebrate AVK's 80th anniversary.



*By Ken Yan,
B&D Marketing Director,
AVK Shanghai*

With the theme of "Tomorrow's Water, Today", our managing director presented the latest value proposition concept of AVK China, further clarified the company's development goals in

2022, and strengthened the confidence and cohesiveness of employees.

All employees gathered to share AVK insights and exchange experiences surrounded by festive decorations in blue and white colours.

During the 80th celebration dinner, we shared our happy times and experiences with each other. To us,

AVK is not only a company, but more like a family, where we work hard together towards achieving our goals.

Our Anhui factory and AVK Hong Kong office also celebrated the AVK 80th anniversary. What a proud history to look back on, and a promising future to look forward to!

COMPETITION



We are happy to announce that the winners of the competition in AVK InterLink no. 57 are:

- Dario Rotolo, HYDRO-COS
- Juliana Celestrim, AVK Válvulas do Brasil
- Lauritz Batting Holtze, AVK Holding A/S

Gifts are on their way.

The correct answer is: Sustainable Development Goal 6 is about clean water and sanitation for all.

New competition:

How many years of success can AVK and OMV-INDOIL celebrate this year?

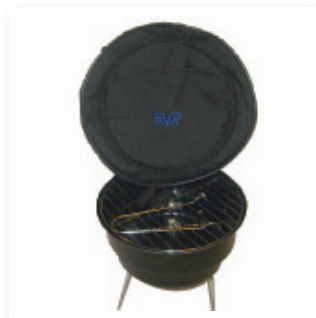
Send an e-mail with the correct answer in which you state your address and the gift you would like to receive – if you win.

E-mail to: lios@avk.dk

Choose between:



Beach towel with AVK valve



Picnic grill in a cooler bag



Ocean bottle

AVK Holding A/S

Bizonvej 1
Skovby
8464 Galten
Denmark

Tel.: +45 8754 2100
Fax.: +45 8754 2120
www.avkvalves.com

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