EXPECT STORIES FROM THE AVK WORLD

Expect...

DEAR READER

I would like to draw your attention once again to the UN sustainable development goals.

In this edition of InterLink we have several articles with a parallel to these sustainable goals. Our eight promises and our five corner stones all describe solutions and/or sustainability. When combining them, we have the most important promise to our customers *Expect sustainable solutions!*

Our products and solutions are part of vital infrastructures that form the foundation on which local communities develop and contribute to sustainable growth thus improving the quality of life for millions of people.

Our solutions contribute to the UN sustainable development goals by ensuring cleaner water and sanitation, by reducing water waste, electricity consumption and CO_2 emissions, and by turning wastewater into affordable and clean energy. All of which forming the foundation for more sustainable cities and communities.

AVK primarily focuses on goal no. 6 and no. 11 in relation to ensuring access to water and sanitation for all and making cities safe, resilient and sustainable and goal no. 7 in relation to ensuring access to affordable, reliable and sustainable energy for all.

The World Economic Forum has outlined some of the greatest challenges the world is facing compared to their probability of arising. A water crisis is evaluated as one of the highest risks to the world and with the largest possibility of impact. This is one of the main reasons why AVK must commit to addressing this challenge. It must be reflected in our approach and in our sales material, and I am proud to say that we are on our way.

I hope you enjoy reading the InterLink.

Michael Ramlau-Hansen

FLASHBACK THROUGH 50 EDITIONS OF INTERLINK


No. 1 - Sep. 95

AVK Inter-Link

Niels Aage Kjær's 25th Anniversary

25 years ago production of the first valve took place in Niels Aage Kjær's machine shop in Galtech and thus Niels Aage Kjær celebrated his 25th Anniversary on 1st June 1995.

Part of the celebrations took place on 2nd June in the premises of AVK Tech where 200 guests congratulated Niels Aage Kjær and enjoyed a delicious buffet and cavilled wine in blue bottles. The AVK logo designed in flowers bloomed in the hall of AVK Tech and the first valve produced by AVK was exhibited, too.

The festive day reached its climax with a balloon ascent, arranged by Clarmt de Kroon (AVK Plastics, Holland), unfortunately a bit late due to too much wind, but no doubt Niels Aage Kjær and his two sons had a marvelous view over the AVK factories and buildings.

The first valve type produced by AVK →

The steam sealing was very simple: there was an upper ring and only 2 O-rings, whereas the 1995 model has a beautiful ring with 2 internal and 2 external O-rings and a wiper ring.

Valve Model 1973

Valve Model 1

No. 26, 2006 – AVK workshop

EXPECT
A LONG-TERM PARTNERSHIP

We want to build and invest in a long-term partnership with our customers. To earn our role as a long-term partner, we strive to deliver value for money. We want to develop our solutions and innovate for the benefit of our customers.

Expect... AVK

No. 22, 2004 – Sales conference

AVK INTERLINK NO. 50, DECEMBER 2017

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Chief editor
Michael Ramlau-Hansen – mrh@avk.dk
Marketing
Lise Rye Brix Østergaard – lios@avk.dk
Coordinator
Jette Jensen – jej@avk.dk

Frontpage picture
Official opening of the competence Center in Norway

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CENTRAL HIGHLANDS WATER INVESTS IN AVK/GLENFIELD CONE VALVE

By Geoff Trowbridge, Business Development Manager Dams, Reservoirs & Hydropower, AVK Valves Pty Ltd

The initial enquiry for the White Swan Reservoir project commenced mid-year of 2015 when consultants from MWH Australia through the support from Louise Loughnan, Lead Engineer at MWH Global, first enquired about a DN600 discharge valve suitable for a new scour pipeline operating at 3.50 cumecs and a velocity of 7.91m/s.

The contract for supply of the valve was received in December 2015. The valve was manufactured by AVK Anhui and supplied by Glenfield Valves. They also supplied the technical data including the plume throw that could be expected from the valve if discharge was initiated to the atmosphere. Based on this information and the requirement to protect the surrounding creek bed environment, it was decided to construct a concrete chamber to control the outflow.

The Glenfield series 857 cone valve is manufactured from a ductile iron body with 316 SS sleeve and operated via twin screws and driven by an electric actuator. Unlike fabricated alternatives, the ductile iron body incorporates an uneven number of ribs that are specially shaped to aid flow and reduce head loss and assures harmonic balance and vibration free operation over full valve travel.

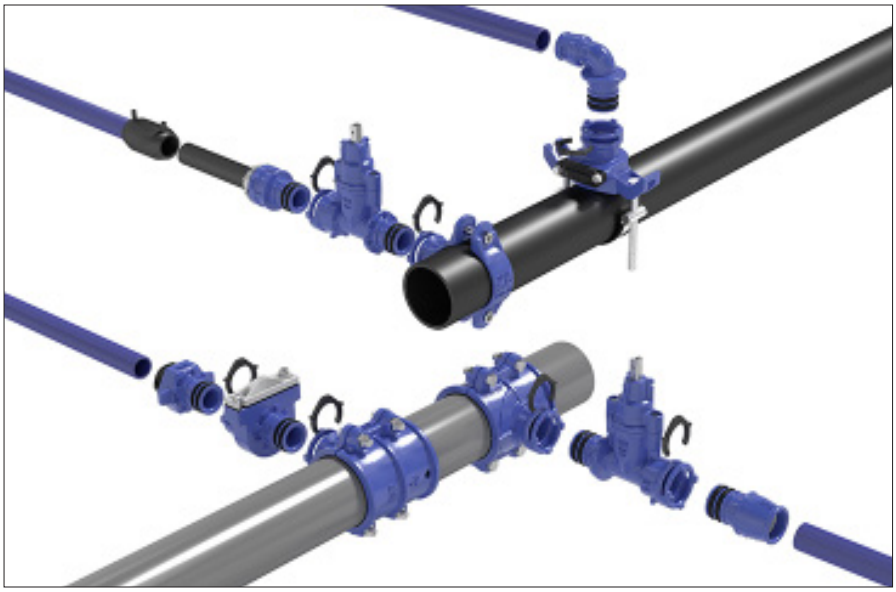
The valve was delivered to CHW Project Manager Rohan Allen in July 2016 but due to weather conditions the valve was not available for site testing until early 2017. At the first operation, the result showed water exiting the valve chamber with the valve opened at 10% with unusually brown water particles being scoured from the new installation.

All parties attended this successful operational test including experts from AVK Valves, David Crawford, Business Development Manager VIC & TAS and Geoff Trowbridge, Business Development Manager Dams, Reservoirs & Hydropower.

BLIND DATE WITH SUPA LOCK™

CROATIA

Many people believe that hard work cannot be funny, or that funny things cannot create serious results. With Supa Lock™ it is easy, fast and possible....



By Branislav Milošević,
Regional Sales Manager,
The Balkan States
AVK International A/S

On 20-23 September 2017, the Croatian water and wastewater utilities (HGVIK) organised the Water Comunity Game in Umag, Croatia – a sports competition gathering with emphasis on technical educations. The aim of the event was to promote the importance of water loss management.

AVK participated in the event together with our local partner, Market Pak, and as our contribution we had decided to test how fast experienced workers could mount Supa Lock™ on a PE pipe under extraordinary conditions! The challenge was to install Supa Lock™ properly in a blind test.

More than 25 teams from different water companies in Croatia joined our competition. Each team of two players had to mount and connect a complete Supa Lock™ set with four bolts without watching. And everybody succeded.

The winning team was Waterworks Ozalj, mounting and connecting the Supa Lock™ in only 1 min. and 3 sec.

So now only one question remain unanswered – how to explain to the boss that sombody needed four hours to make a house connection, when it is proven that Supa Lock™ can be installed in only 1 minute? And even without watching….

AVK ACQUIRES MAJORITY SHARE OF FUSION GROUP LIMITED

UNITED KINGDOM

In April 2017, AVK Holding A/S acquired the majority share of Fusion Group Ltd in a move that created one of the UK's largest gas and water sector products suppliers.

Fusion Group Headquarters, Fusion House, Chesterfield, Derbyshire, England.

By Kelly Hearnshaw,
Group Marketing Executive,
Fusion Group Ltd

The combined turnover of the AVK UK activities and Fusion Group Limited operation will be in excess of £75 million, and will supply gas and water markets around the world.

Fusion Group Limited based in Chesterfield, England, was founded in 1971 and pioneered the adoption of polyethylene pipes for gas networks. The Group has a turnover of more than £28 million, with over 300 employees worldwide.

Operating globally, Fusion Group has manufacturing sites in the UK, China and Egypt, seven wholly-owned or joint-venture distributors, and direct sales into a further 30 international territories.

Fusion designs and manufactures electrofusion fittings, creates polyethylene fabrications, and distributes electrofusion boxes and automatic butt fusion machines and tooling. They also offer an extensive range of spigot fittings.

Fusion, in collaboration with other AVK companies, proposes a global PE network offer of products to be used in a wide range of applications worldwide, from gas and water infrastructure, to mining, energy and agricultural projects.

Fusion Group Limited continues to operate under its own brand with Kevin

Raine, Fusion Group Managing Director and Neil Green, Financial Director supporting and driving the future growth strategy.

Paul Hubbard, Chairman of the AVK UK Group and AVK Group Director, says: "AVK and Fusion Group Ltd are a perfect match, serving the same gas and water markets with entirely complementary products which are often used in the same installation. This will benefit our customers worldwide, with enhanced service offers, broader product offer, a wider customer base, product development and a strengthened manufacturing platform. The acquisition creates greater career opportunities for all employees".

"Both companies work in a safety-critical sector where many customers literally connect AVK products into the mains networks using Fusion Group Ltd products; when they are joined together their shared high standards of design and manufacture are there for all to see."

Kevin Raine, Group Managing Director at Fusion Group Ltd, adds "We envisage great potential for both businesses, the synergies are obvious and will help each other to improve their customers' experience. AVK and Fusion are leaders in their field and both have well established and trusted brands".

AVK SPONSORSHIP IN SAN SEBASTIAN

On 10 September 2017, the rowing club sponsored by AVK in Spain won the most important race of the season, the San Sebastian flag, by rowing like Vikings….

By Joseba Azurmendi,
Managing Director,
Orbinox Valves International

It was 10 years since they last won and the victory felt especially good due to the very bad sea conditions.

The regattas of San Sebastian take place every year on the first two Sundays in September in La Concha Bay. The Thursday before the first Sunday race, up to 24 crafts from the Cantabrian coast compete to obtain one of only seven positions in one of the most prestigious rowing competition of the season. These crafts have a thirteen-man crew: twelve oarsmen and a cox. They are an adaptation of the traditional fishing craft for sporting purposes.

EXPORT PROMOTION CAMPAIGN

USA

Last year at the World Water Day on 22 March, Danish companies presented a LEGO model at the White House to demonstrate Danish water solutions from mapping the ground water through an effective water supply to energy producing wastewater purification. Since then, Danish companies have focused on the American water and wastewater segments.

By Michael Ramlau-Hansen,
Global Brand Manager,
AVK Holding A/S

For AVK this led to a partnership created with the purpose of changing one of the major wastewater plants in Chicago into a more energy efficient plant. The partnership was effective and the Danish Ministry of Foreign Affairs therefore decided to contribute to the establishment of yet another partnership. This partnership is called the Water Technology Alliance California (WTA California) which is an initiative made to create a collaboration platform between California and Denmark focused on delivering sustainable solutions for California's water challenges. As a result, several American delegations have visited Denmark in the past year.

In September 2017, AVK participated in a California-Denmark water MoU kick-off event in Sacramento with the participation of the Danish Minister for Environment and Food, Esben Lunde-Larsen together with State Water Board Chair, Felicia Marcus and CA DWR Director, Grant Davis. Different workshops were conducted during the kick-off event to demonstrate that leakage management is an approach that no water company today can afford to ignore.

During the workshops and visits by American delegations, AVK has presented solutions to reduce water loss i.e. by sectioning the distribution network by means of district metering areas (DMAs) and thus improving the ability to detect leaks significantly. AVK is also part of the LEAKman project which you can read more about on page 10-11. One of the issues dealt with in the LEAKman project is pressure management and for this, the AVK control valve series 859 with intelligent control box is very useful. The demand driven pressure management prolongs the lifetime of the water pipes considerable by reducing the pressure in the pressure zone (DMA) to the exact necessary level related to the water consumption. Studies indicate that reducing the pressure by just 1% extends the life of the water pipes by 0.2 years.

Combining leakage management and pressure management provides water companies with the optimal solution for a sustainable water management and so far, our activities in the US has led to a couple of enquiries about becoming a test partner for our solution within pressure optimization. We look forward to this with great interest.

A district metering area (DMA) is defined as a separate area in the water distribution network. It is usually created by closing boundary valves to be sure it is completely sealed off to the rest of the distribution network. Water flowing in and out of the DMA is metered and the subsequent analysis of flow is carried out by a bulk water meter, pressure-by-pressure sensors whereas leakages are carried out by means of noise loggers placed in the plastic street cover to monitor the noise level from leakages. Even without noise loggers, it is very important to have shut-off gate valves placed strategically in order to subdivide the DMA into even smaller units in the work of searching for leaks.

A rule of thumb is that 10% less pressure equals 10% less leakages, 30% lower pressure equals 30% less water loss, and 38% less pressure equals 53% less pipe breaks.

EXPECT SOLUTIONS, NOT JUST PRODUCTS! A WATER CORPORATION PROJECT SUPPORTED BY AVK

Water Corporation is in the practical completion stage on a major upgrade for the rural town of Collie in the south west of Western Australia. An 8 kilometre pipeline has been under development from the southern end of Stirling Dam connecting to an existing pipeline to the north west of Harris Dam. The project was implemented to improve on the town's quality of drinking water and maintain an efficient supply of the resource within the dry months when rainfall is at its minimum.

By Michael Woolley,
WA State Sales Manager,
AVK Flow Control Pty Ltd

AVK Flow Control supplied 6 x Wouter Witzel butterfly valves ranging from DN700 to DN900. The valves were manufactured to Australian standards and designed to provide a resourceful flow and transfer of water, thus ensuring the sustainability of Harris Dam. The specifications of the installation required customised electronic actuators that could be monitored and controlled from remote locations around Australia when water levels begin to reach critical points.

Committing to our key promises of 'Expect solutions, not just products' and 'Expect prompt response', the AVK Flow Control team was onsite and always on time whenever assistance was required, providing a high-level of quality service, support and commissioning from planning to completion. External contractors were also supporting Water Corporation in collaborating with the sales and technical support, and we have managed to build further customer relationships and establish long-term partnership.

The expectations of this project require the valves to be underground for the next 40 years without any maintenance required, thereby reinforcing the quality and durability of our brands.

A FUTURE WITH MINIMISED WATER LOSS

DENMARK

Reducing the loss of drinking water is a global focus area and an average water loss below 10% in the Danish water distribution network is among the lowest worldwide.

By Charlotte Brønsted Rasmussen, Marketing Coordinator, AVK International A/S

Together with DTU, the water suppliers Novafos and HOFOR and a number of other industry partners, AVK has joined the LEAKman partnership. The purpose is to implement state-of-the-art water distribution by using high-technology products and techniques and by tying components and software together into integrated solutions. The goal is to minimise water loss and an important part of this project is effective tracking and management of leakages.

Case: Klampenborg
As part of the LEAKman project, the two water suppliers Novafos and HOFOR have each selected two areas where noise loggers will be installed. Automatic tracking ensures that leakages are quickly identified. This does not only minimise the water loss caused by leakages; it also prevents the damage from escalating and causing more serious consequences. At Novafos they have already seen positive effects of the automatic loggers, as two leakages were identified only a few days after installation.

Automatic tracking and reporting
Leif Koch A/S has developed noise loggers for automatic tracking. The leak noise behaves in a special way and can be recognised and distinguished from background noise by a microphone in the noise logger. Listening to the intensity and the frequency of the noise, the logger can identify and locate the leakage.

The water supply network

The water distribution network is massive and it can be difficult to get an overview of all details. The pipe network in modern water distribution systems is therefore sectioned into smaller areas called District Metered Areas (DMA) including between a few hundred and a couple of thousand consumers. Each section has one primary entrance and a number of secondary entrances for use in case of emergencies.

The sections need to be well defined and separated by shut-off valves – typically gate valves. It is extremely important that these valves are reliable and completely tight because otherwise you will not be able to know if water is lost due to leakages in the section or if it simply disappears to the neighboring section.

The noise loggers can be programmed to 10,000 listenings at a pre-defined time, typically between 2 am and 4 am when consumption and background noises are at a minimum.

Placing the noise loggers
Each section of the distribution network is provided with a number of valves in order to be able to isolate a section (which is as small as possible) in case of pipe bursts or the need for establishing new pipes. The valves are spread across the whole section and thus, it is an obvious opportunity to place the noise loggers together with these valves.

The valves are mounted on the pipes, and here they are in contact with the water path. On top of the valve, there is an extension spindle allowing the valve to be operated (open/close) from street level. The valve and the extension spindle have metallic contact, and as sound is transported optimally through metal, this location provides optimal conditions for noise loggers.

The extension spindle is fixed in a street cover – which is typically installed in the road or in the sidewalk. AVK has developed a plastic street cover allowing storage of the necessary equipment for noise loggers, like microphone, software installation, battery and antenna.

Identifying leakages
Prior to installing the noise loggers, all valves in the selected area need to be checked to make sure that they are tight and function as intended. Then you need to decide where the loggers should be installed.

In Klampenborg, 125 noise loggers have been installed and two leaks were identified just a few days after installation. It is unlikely that these leakages would have been found without the automatic loggers. At least not in the short term.

One of the leaks was identified on a private pipe installation where the owner is usually responsible for the repair. In this case, it was fixed in cooperation with Novafos, and the leakage was repaired in less than three weeks. The second leak was repaired within only one week after identification.

Before the noise loggers were installed in Klampenborg, leakages were detected at manual inspection of the distribution network. In this area they had a systematic but manual inspection every second year. So, without the loggers it may obviously take a while before a leak is identified – in Klampenborg up to two years. During this period of time, the water loss will be a significant cost, and it should be taken into account that over time, a leak may potentially turn into a pipe burst and cause even worse and more expensive damages. Leakage management is therefore an important tool to reduce water loss as well as costs.

Both Novafos and HOFOR are already using automatic noise loggers at selected locations in their areas and as part of the LEAKman project, the whole Klampenborg district is now systematically monitored and on its way to absolutely minimise the water loss.

More about the LEAKman project
The LEAKman project intends to demonstrate Danish solutions to reduce the water loss and to pave the way for new Danish water technology. It is a four-year project with a budget of DKK 43m.

The goal is to establish some guidelines that can be implemented globally and help ensure stabile water distribution all over the world. We are nine partners working together on the project and besides AVK, Leif Koch A/S, NIRAS, Grundfos, Kamstrup, DTU, Novafos, HOFOR and Schneider Electric have joined the partnership.

THE ACADEMY DRIVES SKILL DEVELOPMENT AND KNOWLEDGE TRANSFER

By Sayuri Papiah,
Marketing Manager,
AVK Holding S. A (Pty) Ltd

The Academy, established by AVK Holding Southern Africa, was publicly launched in September 2016. The Academy is a training centre based at our premises in Alrode, Johannesburg, and accommodates up to 35 people. We have recently introduced a new and exciting course called Advanced Valves – principles and practice, which will officially roll-out in 2018.

Currently, The Academy hosts bi-weekly training sessions for the Valve Fundamentals course. This course has been designed to mould attendees (regardless of their background knowledge), and build them up to be more versatile and proficient in the use and application of various valve types, as well as gain an understanding of the operating devices relating to them.

Considering the complex nature of valves and their various applications, the course examines both theory and practical examples including an informative factory tour by addressing the following:

- principles of basic valve design along with the different valve types commonly used in the industry
- definitions of important terms used in valve selection and their application
- activities involved in installing, operating and maintaining valves
- processes to be considered in maintaining, manufacturing and reconditioning valves
- procedures included in the testing of valves and providing quality insurance

The establishment of The Academy has been overseen by Roelf Frauendorf, Academy Manager and head facilitator. Roelf is a qualified field engineer with more than 30 years experience in the valves industry. After holding various engineering positions for 14 years with Ingersoll Rand, and a further six years in the construction industry, he entered the valve industry in 1987 as a Sales & Project Manager for IPV (Industrial Petroleum Valves). After IPV was sold in 1998, Roelf held several senior management positions at Paltech and Enserve. Thereafter, he served as National Sales Manager

for Premier Valves. Premier Valves is a proud member of the AVK Group and Roelf now uses his extensive technical knowledge to lead The Academy.

Initially, the purpose of The Academy was the transfer of skills and knowledge from trainer to learner. For any country, including South Africa, this is critical for the sustained growth and development of the economy. According to Roelf, “South Africa has a shortage of high-quality and qualified trade artisans, including boiler makers, pattern makers, foundry men, fitters and turners, welders, tool makers, plumbers and electricians.” The training provided by The Academy not only guides students in making career choices on these fields but also assists those who require refreshed knowledge and guidance, such as trade artisans working with valves. Moreover, the Valve Fundamentals course is of great value to engineers – they are awarded two CPD points upon completion and all attendees receive certificates once their assessments are marked and graded above 85 percent.

In September 2016, The Academy aimed to transfer skills and knowledge to 1,000 non-AVK Employees, and as of 29 September 2017, they successfully reached this goal by training 1,302 learners.

The purpose of The Academy has grown from the replication of expertise, wisdom and skills possessed by professionals, such as Roelf, to develop product knowledge and mentoring our internal staff across our business units – including sales and logistics, our distributors and industry. The implementation of our training facility has moved the right skills at the right time to keep our staff and the industry prepared, productive, innovative, and competitive.

The Academy will boost the presence of the AVK brand in the industry, affirming its position as the leading valve solutions provider.

AVK NEDERLAND INTRODUCES QR TRANSITION COUPLING

We are pleased to introduce our QR coupling, which is a good alternative for repairing damaged pipes with sealing tape.

By Dana Hofman – Dooijeweerd, Marketing Manager, AVK Nederland B.V

The new Quick Repair (QR) transition coupling sets a new standard for quick but professional repairing of leaking pipe connections. AVK Nederland has two types of couplings, one for water and one for gas. The QR transition coupling is maintenance free and made entirely of stainless steel with a rubber sealing inside and is therefore fully protected against corrosion.

Sustainable professional solution
The conical wedges are easy to assemble without using any special tools and you only have to clean the pipe around the sealing. Furthermore, a big benefit of the QR coupling is that you don't have to stop the flow during mounting; the pipeline stays operational. The couplings are tested for at least 30 years of functionality, and this sustainable professional solution gains a lot of time for the mechanics.

Coupling for gas developed at customer request
By request of a good relation, AVK developed a transition coupling for leaking pipe connections for steel pipelines for gas. The coupling for gas pipelines is approved according to KIWA and is available for steel pipe diametres 1" and 1 1/4". After mounting the transition coupling over the existing thread connection, the test nipple can be used for a pressure test. The maximum working pressure is 300 mbar and the coupling is suitable for temperatures from -20°C to 70°C.

QR transition coupling for water
After developing the QR transition coupling for gas pipes, there appeared to be a demand for a similar coupling for leaking water pipes. The QR for water is developed for steel pipes with diametre 1", 1 ¼", 1 ½" and 2". The maximum working pressure is 10 bar and the coupling is suitable for temperatures from -20°C to 70°C. Obviously, AVK is able to develop other sizes or types on request.

Animation and sample kit
AVK Nederland has created an animation movie which shows applications and benefits of the easy installation of the QR compared to the time-consuming alternatives. Within short, we have a sample kit available for interested sales people. The QR coupling was also shown at the Pumpes & Valves trade fair in Rotterdam 4-5 October 2017.

THE AFRICAN WAY

By Kieran Cantrell,
Market Development Manager,
AVK International A/S

Anyone travelling to Africa for the first time will usually be very surprised. The huge continent is a very diverse collection of over 50 countries with high population and economic growth rates. It is expected that there will be 12 megacities in Africa by 2025, with the world's fastest growing middleclass population. With the recognition of climate change and resource scarcity, Africa has a great potential for AVK.

Is there an African way of doing things? Not really! The myth is dispelled with one example of a borehole project where resilient seated gate valves, double eccentric gate valves, air valves and various fittings were fitted in a pumping station – all supplied by AVK International A/S through Imcopipes Ltd. This project (one of many in different locations) is fully functioning and eventually up to 20,000 homes will be supplied with clean drinking water.

SCOTTISH WATER - GLENHOVE AND GOWANBANK PUMPING STATIONS

UNITED KINGDOM

Glenfield
Dams, Reservoirs & Hydro Solutions

Glenfield Valves Limited has been awarded the refurbishment and re-installation scheme for valves originally manufactured and installed in 1969. Using the original drawings and plans archived in its extensive library of over 500,000 microfiche original drawings, Glenfield provided the benefit of experience and efficiencies to the scheme.

By Jim McAllister,
Project Manager,
Glenfield Valves Limited

In October 2016, Glenfield Valves Limited commenced work on two schemes for Scottish Water; the Glenhove and Gowanbank drinking water pumping stations. These pumping stations supply drinking water to the Cumbernauld and Falkirk areas respectively and completion of the works is scheduled for August 2017.

The scope of works for both schemes included the removal, refurbishment and re-installation of various diameter submerged discharge valves situated in chambers used to store treated drinking water. Originally installed in 1969, the storage tank capacity is approximately 20,000,000 gallons.

Glenhove Pumping Station
Works at the Glenhove Pumping Station involved four chambers and included:

Chambers 1 and 2
Works for chambers 1 and 2 included the removal, refurbishment and re-installation of:

- 4 No x 36” diameter cemented submerged discharge valves (2 per chamber)
- 2 No x 6” diameter float valve (1 per chamber)

Chambers 3 and 4
Works on chambers 3 and 4 included the removal, refurbishment and re-installation of:

- 2 No x 6” double float valves (1 per chamber)

Gowanbank Pumping Station
Gowanbank Pumping Station has two chambers and works included the removal, refurbishment and re-installation of:

- 2 No. x 30” diameter submerged discharge valves (1 per chamber)
- 1 No x 6” float valve

Glenfield Valves Limited Project Manager Jim McAllister says, “We are delighted to have been awarded these schemes by Scottish Water. Both have presented challenges and we were able to draw on our records, extensive expertise and resources to ensure a confident, resilient and robust solution.”

The first task for the Glenfield team was to identify the size and specification of the valves within the chambers; a task made easier having the original Glenhove and Gowanbank drawings in their vast archives. Once identified, the team dealt with the major task of extracting the valves from the chambers where the valve size and weight, plus space restriction required experienced engineers, precise communication and collaboration with Scottish Water and the Glenfield supply chain.

Jim continues, “The valves were isolated and the tanks drained, this enabled the team to remove the valves with the aid of a 500-tonne crane. This was a tricky process as the valves were removed through hatches within the chambers that only had millimetres of spare capacity for the valves to fit through.”

Once removed, the valves were dismantled and taken to the Glenfield plant in Kilmarnock. Here, they underwent extensive refurbishment that included:

- complete visual and operational inspection and dismantling
- shot blasting and repainting of all cast components
- cleaning and restoration of the stainless-steel sleeves
- replacement of drive shafts within the valves where needed
- remedial machining on some shafts
- all seals removed and replaced on the float valves
- all stainless-steel fasteners replaced on all valves
- stainless-steel operating levers on float valves replaced

After refurbishment, the valves were re-assembled, fully tested and transported back to site for installation by the Glenfield team and commissioning by Scottish Water.

Jim concludes, “The Glenhove and Gowanbank schemes have been exciting and challenging ones. The cooperation between Scottish Water, Glenfield Valves Limited and our supply chain has been excellent which has contributed directly to the success of the schemes.”

LARGE-SCALE PROJECT FOR EFFICIENT WATER SUPPLY MANAGEMENT LEADS TO MILLION DOLLAR SAVINGS

GEORGIA

Georgian Water and Power (GWP) has chosen AVK International to supply more than 500 pressure reducing valves (PRV's) in order to significantly improve and efficiently manage their water supply.

By Charlotte Brønsted Rasmussen,
Marketing Coordinator,
AVK International A/S

and

Martin Børsting,
Product Manager, Control Valves,
AVK International A/S

A critical water loss at around 70% in the Tbilisi-region has previously given rise to a leakage reduction initiative. Now, GWP has decided to go all the way to obtain an efficient water supply management, and 150 PRVs already installed as part of the initiative are to be replaced by AVK valves in addition to more than 350 new PRV installations. The expected savings on water production is more than six million USD every year.

Quality matters

We supply high quality solutions and our prices are not always able to compete with the cheapest options. However, it was clear from the beginning that GWP requires high quality and dedicated support, and after technical discussions with our experts, they acknowledged the benefits of AVK valves.

Million dollar savings

The benefits of pressure management are many – most of them having the

overall theme of minimising the water loss. There are benefits for consumers and water utilities as well as for sustainability.

Pressure management has proven to efficiently reduce leakages and thereby also lower the non-revenue water level. This improves energy efficiency as well as operation and maintenance costs. Pressure management using PRVs can really make a difference and besides savings on produced and pumped water it can also improve e.g. consumer satisfaction by minimised disruptions. A major benefit of pressure management in the Tbilisi-region is specifically the allowance for control of the excess pressure that arises as the water flows from the high elevated reservoir.

After installation of 235 of the total 500 PRVs already demonstrates significant results. The overall water distribution in the supply area has been reduced by 7% compared with the past year, and the consumption of electricity for water treatment and distribution has been reduced by approximately 10%. The risk of water hammer has also been reduced with 25% less pipe bursts. The pumped water is reduced by 76,000 m³ per day meaning that at the moment, GWP saves 27,740,000 m³ of water per year.

After installation of all of the 500 PRVs, GWP expects the amount of pumped water to be reduced by 58.000.000 m³ per year. As the total estimated cost of producing one cubic meter of water in Tbilisi is around 0.11 USD, the savings alone on producing this amount of water will be nearly 6.4 million USD per year. Impressive numbers that are within reach for the Georgian water supplier and the consumers in Tbilisi.

Savings after installation of 235 PRVs:
Electricity reduced by approx. 10%
Pipe bursts reduced by 25%
Pumped water reduced by 27,740,000 m³/year

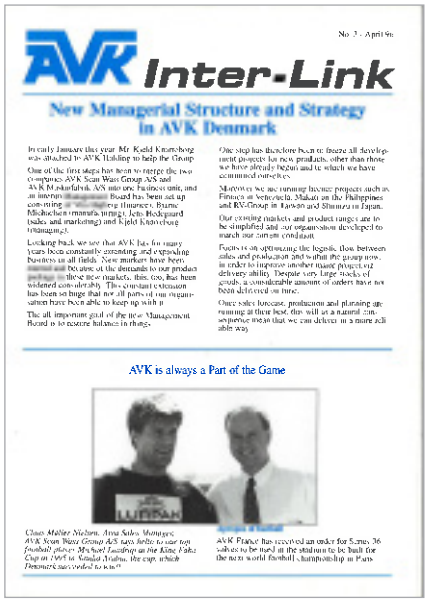
Expected savings after installation of 500 PRVs:
Pumped water reduced by 58.000.000 m³/year
Saved production costs 6.380.000 USD/year*

*The cost of producing 1 m3 water in Tbilisi being 0.11 USD

Georgian Water and Power (GWP) is a leading company on the water supply market of Georgia and South Caucasus. The company provides high quality service to the population of Tbilisi, as well as to state organisations, industrial and commercial objects. More than 3,000 company employees ensure delivering water and wastewater services to Tbilisi residents.

Source: www.gwp.ge

FLASHBACK THROUGH 50 EDITIONS OF INTERLINK


AVK Inter-Link

No. 3 - April 96

New Managerial Structure and Strategy in AVK Denmark

AVK is always a Part of the Game

No. 3, 1996 – AVK is always part of the game


Niels Aage Kjær's 40th anniversary

No. 40, 2012 – Niels Aage Kjær's 40th anniversary


Saudi Valves completes its first Series 45 orders

No. 14, 2000 – Saudi Valves' first order


No. 36, 2010 – Morten Sæderup Nielsen on an elephant with a Supa Maxi™ coupling


REPAIR CLAMPS - GOOD FOR TEAMBUILDING

By Yvonne Kruisweg, Secretary, AVK Nederland B.V.


AVK interlink

No 40 • December 2012 • AVK INTERNATIONAL A/S


AVK Academy and Visitor Centre

No. 28, 2007 – Opening of the AVC in Skovby

No. 18, 2002 – Product seminar

No. 43, 2014 – Release of the AVK book. Niels Aage Kjær in front of the AVK car.

No. 7, 1997 – Sales conference

No. 27, 2006 – Traffic accident

No. 42, 214 – Fire hydrants in America

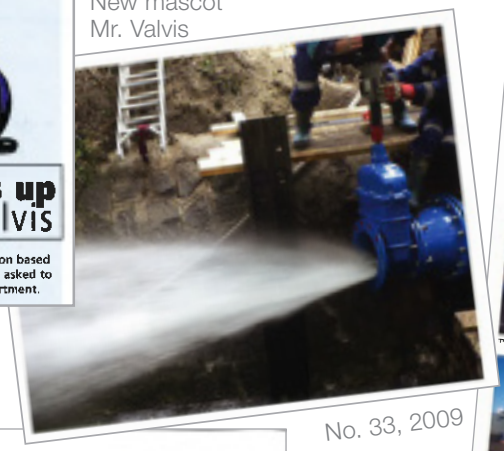
No. 2, 1995 – Staff members from AVK Norge


Some of the staff members. From the left: Svenn Erik Aasen, Terje Gulliksen, Ellen Elise Ul Vee.

No. 43, 2014 – Global Management Conference

No. 26, 2006 – Installation photos of Glenfield products

No. 8, 1997 – New mascot Mr. Valvis



No. 33, 2009

No. 17, 2001

No. 12, 1999

No. 37, 2011

No. 38, 2011 – Miroslaw Kopyta on valve

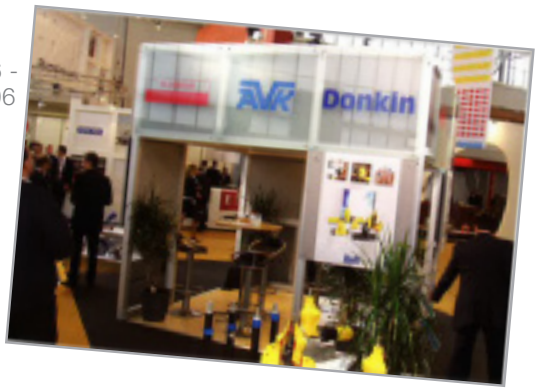
No. 41, 2013 – Leakage seminar in Manchester Airport

No. 46, 2016

No. 44, 2015 – Opening of AVK foundry

No. 39, 2012 – AVK SVMC production team

No. 26, 2006 - World Gas 2006



No. 13, 1999 – Dismantling joints

No. 46, 2016 – Brazil

No. 48, 2016 – Gas & Heating China Expo in Beijing, China

No. 33, 2009 – Plastic surface boxes from AVK Plastics

No. 45, 2015 – Merger of INDVA Sverige AB and AVK Sverige AB

No. 47, 2016 – New main water supply with combi-cross in Norway

No. 48, 2016 – Signing of license agreement

No. 39, 2012 – Group Management

No. 21, 2004 – Victoria hydrant

No. 21, 2004 – Underground hydrant S35

No. 37, 2011


Leader
AVK Company in Poland

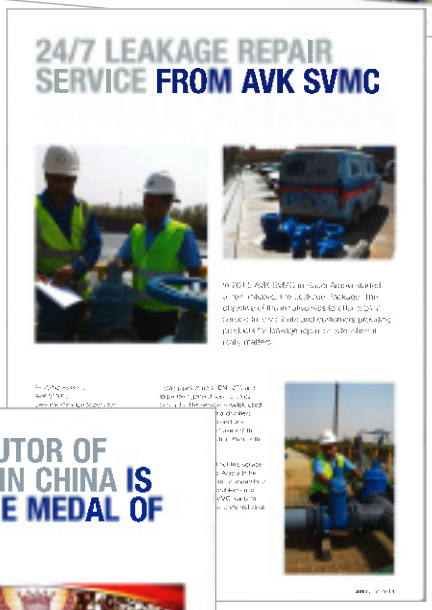
No. 11, 1998 – AVK company in Poland


CELEBRATION OF NIELS AAGE KJÆR'S 70 YEARS BIRTHDAY

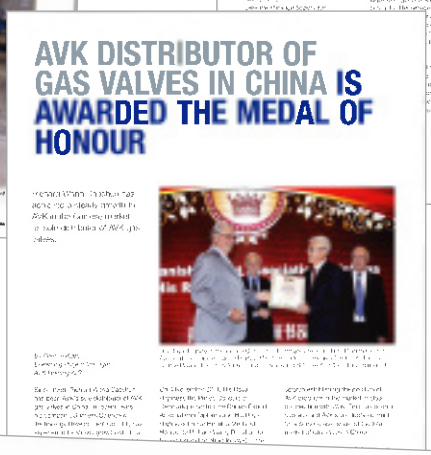
No. 44, 2015 – Niels Aage Kjær's 70 years birthday


Opening of flow lab at AVK International A/S

No. 36, 2010 – Flow lab opening


24/7 LEAKAGE REPAIR SERVICE FROM AVK SVMC

No. 46, 2016 – 24/7 service from AVK SVMC


AVK DISTRIBUTOR OF GAS VALVES IN CHINA IS AWARDED THE MEDAL OF HONOUR

No. 44, 2016 – Medal of Honour


AVK Inter-Link
No. 11 • September 1998 • AVK International A/S
New AVK Company in Poland
AVK Tooling A/S a succesful High-Tech Company
Succesful AVK Agent and license partner
Special application Solving all problems
New Presentation Video from AVK Marketing
Donkin Valves looking towards the Millennium


TRAINING CENTRE AT THE NEWLY OPENED AVK PLANT

No. 48, 2016 – Training centre opened in South Africa

MEDAL OF HONOUR FOR AVK RESELLER, JOEL SELVANAYAGAM

DENMARK

AVK reseller awarded the Diploma of the Danish Export Association and His Royal Highness Prince Henrik's Medal of Honour

By Charlotte Brønsted Rasmussen, Marketing Coordinator, AVK International A/S

From left to right: Ms Ilse Korsvang, Representive of Danish Export Association, Mr Ulrich Ritsing, Representive of Danish Export Association, Ms Ellen Margrethe Kjær, AVK Holding A/S, Mr Niels-Erik Andersen, Ambassador of AVK Holding A/S, Mr Joel Selvanayagam, Chairman of Hovael Holding (Private) Ltd., HRH Prince Henrik, Mr Niels Aage Kjær, CEO of AVK Holding A/S, Mr Paul Hubbard, Group Management Board and Regional Chairman at AVK Holding A/S.

The ability to act

Back in 1997, we started our SEA activities and soon got enquiries from several Sri Lanka trading companies. Joel Selvanayagam and Kapila Wijayaratne showed the ability to act and thus Hovael Holdings became one of our very first distributors. Joel and Kapila paid AVK a visit in January 1998 and before they left, the first order for valves to be shipped to Sri Lanka was placed. This was the beginning of a very successful partnership, now lasting for almost 20 years.

The key to success

Dedicated and persistent efforts are among the reasons why Hovael Holdings successfully has convinced the National Water and Drainage Board, Colombo, Sri Lanka, to invest in high quality valves. Joel's persuading telling about why to invest in AVK quality has over the years turned into experiences showing that if you invest in quality, you only need to invest one time over the lifetime of an installation. During 20 years of arguing and convincing, Joel and Kapila have not only proved their belief in the quality concept, they have also convinced the local water authorities (NW&DB) about the benefits.

Honouring loyalty and dedication

On behalf of Danish export and in particular the interests of AVK, Joel and Kapila represent the best qualities in a partnership within a foreign market: Focus on sales, loyalty and continued growth of the business over the years. Therefore, it is an honour to reward Joel and Kapila for their efforts, dedication and loyalty.

The Diploma of the Danish Export Association and HRH Prince Henrik's Medal of Honour was presented to Joel Selvanayagam by HRH Prince Henrik at a ceremony at Marselisborg Palace, Aarhus, Denmark.

About the Award

The award is given to agents, distributors or companies abroad. To be considered for the award, the recipients must have demonstrated outstanding profits for the past five years. Furthermore, the recipients must support and visualize Danish values, for example by helping other Danish companies penetrate a foreign market and in general promote Danish products and services abroad.

REHABILITATION OF WATER INTAKES AND WATER TREATMENT PLANTS IN ARGES COUNTY: BUDEASA, COSTESTI AND TOPOLOVENIA

ROMANIA

As part of the bigger EU funded project "Extension and rehabilitation of water and wastewater infrastructure in Arges county", the main objectives of the rehabilitation of water intakes and water treatment plants are to increase the capacity of drinking water supplied to clients to improve drinking water quality, improve the drinking water supply services, modernise the equipment and improve the efficiency of each station being part of this infrastructure.

By Andrei Palana,
Product Manager,
Vestra

and

Felix Gyori,
Product and Promotion Manager,
AVK International A/S, Romania

In 2016-2017, AVK and our partner Vestra supplied gate valves, centric butterfly valves series 820 and 75, air valves, Y-strainers, check valves and dismantling joints for pumping stations and three drinking water treatment plants, including Budeasa drinking water treatment plant which provides water for more than 180,000 people.

Also, for a similar project in the same area, AVK and Vestra have delivered street boxes personalised with the name of the water company.

We have a good history with this water company starting in 2009 when Elsaco (now Vestra) delivered a large quantity of AVK double eccentric butterfly valves and dismantling joints DN200-DN1000.

Once this project is finalised, more than 220,000 people, including the citizens of Pitesti, the main town of the county, will benefit from a more efficient supply system and an improved drinking water quality.

BLUE IS THE COLOUR IN NEW SUMMER SWIMMING POOL IN TRENČÍN

SLOVAKIA

The hydrant is coated in a blue colour to blend with the water world.

A dominant feature of the new summer swimming pool in Trenčín, Slovakia is the AVK above ground fire hydrant series 84/51 DN100 in Nostalgia design.

By Marian Drahovsky,
Product and Promotion Manager,
AVK International A/S

This was a rush-job which could not have been performed without the flexible production and delivery period of AVK Armaturen in Germany.

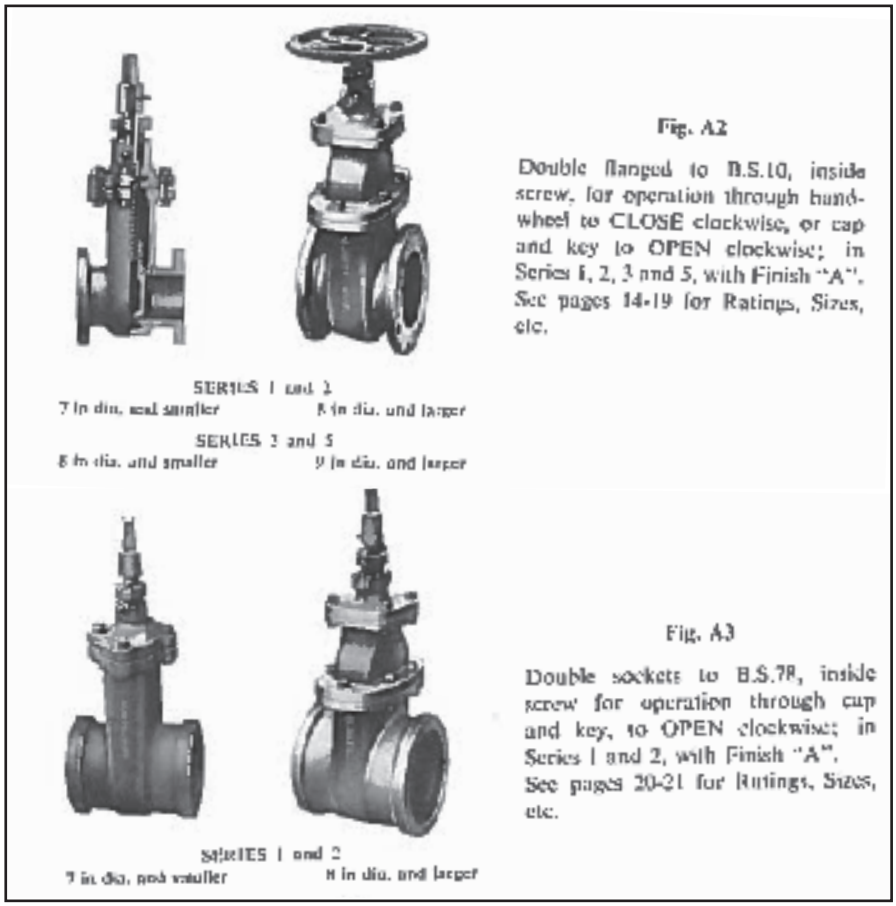
The hydrant was delivered by AVK International's new distributor for Slovakia, Mar-Po spol. s.r.o.

Mar-Po started working with AVK International in November 2016.

The hydrant was assembled by the employees of Trenčianska Vodohospodárska spoločnosť, a.s., a respected AVK customer for many years.

HISTORICAL GLENFIELD VALVES SOLUTION STILL OPERATIONAL

UNITED KINGDOM



Much has been written about the need for water utility companies, suppliers and contractors to produce resilient solutions within their projects, whether through design, project implementation or the type of products and materials used.

Original Glenfield Valves Limited brochure drawing.

By Greg Morris, Engineering Manager, Sales, Glenfield Valves Ltd

However, this is not new to the industry; you only have to look at some of the great Victorian engineering projects that are still standing and providing the need they were designed for to realise that providing resilient and high-quality works is not a new phenomenon.

A great example of this is a gate valve and floor pillars manufactured and supplied by Glenfield Valves Limited in the second half of the 19th century to the South Staffordshire Water Company for the Stowe Pool Reservoir. The valve is still operational!

Stowe Pool is a reservoir located in the city of Lichfield, Staffordshire. Formerly a fishery, along with nearby Bishop's Pool and Minister Pool.

It can be dated back to the Domesday Book and was originally formed in the 11th century when a dam and mill were

constructed across Leamonsley Brook near to St Chads Church.

The original mill was under the ownership of the Bishop of Lichfield and provided him with an important income from the city.

The South Staffordshire Waterworks Company turned it into a reservoir in 1856; it is now owned and managed by Lichfield District Council.

The gate valve installed at Stowe Pool, which is used for isolation purposes, was made out of meehanite iron and is an early example of an inside screw, wedge gate valve.

Outlet valve operation.

Meehanite cast irons were produced under specific and carefully controlled conditions to precise specifications.

Castings made by this method were used extensively to make machine tools, gears, sheaves, and cylinder heads, valve bodies, rolls and other highly engineered applications.

The stem was forged under the hammer in manganese bronze, machined all over with a strong square thread. The valve would also have been dipped in coal tar, more commonly known as "Dr. Angus Smith's solution" or painted with one coat bitumastic paint where size or shape of casting did not permit dipping.

The company has been designing, and manufacturing specialist engineered valves for more than 160 years. Its products are installed worldwide in countless dams, reservoirs, and hydropower applications.

The gate valve and other products manufactured and supplied on the Stowe Pool Reservoir and Minster Pool are still operational, and they are a testament to the design, quality of material and overall products supplied at that time.

Greg Morris, the Engineering Manager for Glenfield Valves Limited, said, "It is fascinating to see how the coating processes and materials have changed over the years compared to the valves manufactured today which are now fusion bond epoxy coated under controlled conditions, giving high-quality finish and excellent corrosion protection.

We would love to think that similar gate valves and products supplied and installed today will stand the test of time and still be operational in the next century."

Original valve in upstream valve chamber.

AVK AT INTERNATIONAL INDUSTRIAL TRADE FAIR INNOPROM 2017 – EKATERINBURG

RUSSIA

The annual trade fair INNOPROM, with its 50,000 square metres and 600 presenting companies from 20 countries, is the largest of its kind in Russia with main focus on advanced technologies and innovation practices which can be applied by Russian industry giants. Everything from metal and mining to robotics and infrastructure is explored and shared over the course of four days, and the exhibition is visited by more than 200,000 people.

By Kirill Korobitsyn,
Area Sales Manager,Russia, Belarus and Ukraine,
AVK International A/S

We experienced a hectic start when we all, upon arrival at the Trade Fair Centre, were asked to leave because Mr Putin had decided to take part in the opening ceremony as part of his visit to Ekaterinburg. So after two hours in direct sunlight and +30°C, they finally decided to let us and the other exhibitors inside to participate as well.

Encouraged by our local Russian distributor, URFO–ENGINEERING, AVK participated in this event for the first time. Surprisingly, INNOPROM is often neglected by valve manufacturers and thus, being the only valve manufacturer at INNOPROM, we immediately enjoyed the attention from all corners of Russia.

We noticed that our reputation of being a high quality manufacturer and now also locally represented in the Ural region, helped pulling people to our booth; and we were talking to customers, shaking hands and handing out product brochures. The smiles on our potential customers' faces and feedback as “we can’t believe you’re the only valve company present here” made it all worthwhile.

Our booth presented the entire range of AVK products including InterApp, Orbinox, Wouter Witzel and CYL, emphasizing the scale of the AVK Group and the importance of a one-stop-shop. This also caught attention from one of the biggest mining companies in the world, UGMK (Russian Copper Company), buying thousands of valves for its group of companies.

We also had a visit from our loyal customers such as Ekaterinburg Waterworks (3000 employees and a turnover of 50 mill. Euro net), who loves working with AVK products.

Overall, we are very happy with our participation and look forward to INNOPROM 2018 where we will hopefully bring more customers and potential partners to help boost our reputation as the number one supplier of solutions, not just products!

SA WATER INVESTS IN AVK BUTTERFLY VALVES FOR THE INFRASTRUCTURE STORAGE SITE UPGRADE AT HOPE VALLEY

By Craig Wright,
General Manager Sales & Marketing,
AVK Valves Pty Ltd.

SA Water manages water services in South Australia and are owned and operated by the South Australian Government. It provides world class water services to more than 1.6m South Australian customers in particular safe, clean drinking water, and once this water has been used, SA Water removes the waste and treats it to ensure the best outcome for the health and well-being of all South Australians, and to reduce environmental impact.

SA Water is upgrading the infrastructure at the Hope Valley storage site which will involve two development stages:
1. Network modification
2. Tank works

The storage site is commonly referred to as 'Terminal Storage'. The storage has a capacity of 136 million litres and supplies water to over 100,000 customers across Adelaide. AVK Valves has been working closely with SA Water on the supply of 2 x series 756 butterfly valves PN25, DN1000 and DN1200.

The photos above depict the installation of the valves at Hope Valley including the product inspection by SA Water engineers at AVK Valves' high-tech plant in Wingfield.

SOUTH AFRICAN DEPUTY MINISTER VISITS DENMARK TO LEARN ABOUT WATER TECHNOLOGY

By Charlotte Brønsted Rasmussen,
Marketing Coordinator,
AVK International A/S

Denmark is providing leading edge water supply and wastewater management solutions and has one of the lowest non-revenue water rates in the world. This is even supported by net energy producing wastewater treatment plants and the Danish model thus provides something very special.

Danish leading edge water technology

Representatives from water industries around the world are interested in experiencing the Danish water supply and wastewater management to evaluate how the technologies can be transferred to improve the water supply sector in their parts of the world.

Recently, the South African Deputy Minister of Water and Sanitation and a delegation of high ranking officials representing the South African government, the Danish Embassy in Pretoria and Rand Water, which is one of the world's largest water utilities, decided to invest in the future and strenghten their partnerships with the Danish water industry.

They came to visit two Danish water utilities, HOFOR and Aarhus Vand, showcasing some of the leading technologies and sustainable solutions within water supply and wastewater management. Their visit also included a stop by the Danish Ministry of Environment and Food and a business-to-government workshop hosted by AVK.

Improving the water supply globally

At the workshop, the Danish industry and the South African representatives got the opportunity to discuss potential future partnerships. Some of the challenges and future projects in South Africa were outlined and the companies representing the Danish

water industry shortly introduced themselves and their services.

Grundfos, NIRAS, Kamstrup, Danfoss, DHI, ecoBETA, BWT and AVK attended the workshop together with the South African delegation.

AVK Centre of Excellence
We have been present in South Africa for more than 25 years. In 2015 our own production facilities were established and enabled us to provide a full range of products, technical support and solutions to the South African Water Industry. Our activities in South Africa have created more than 200 new jobs and with The Academy we have a customer training, development and valve solution centre for the whole region with classroom training, technical seminars and practical learning facilities.

Our aim is to provide training and assist the South African water industry to develop experience, knowledge and skills locally. Our vision is not only to serve the South African market but to create a competitive manufacturing, engineering and technical centre of excellence for the entire Sub-Saharan water market.

HOFOR

HOFOR is the water utility of greater Copenhagen and supplies Copenhagen and a large number of the surrounding cities not only with water but also wastewater discharge, district heating, city gas and district cooling.

The aim is to create sustainable cities based on environmentally sound solutions.

Aarhus Vand

The second largest water utility company in Denmark is Aarhus Vand and they are working with the entire lifecycle of water – from tap water until the purified wastewater from both households and industries is returned to the nature.

Water and wastewater facilities are usually high energy consumers but at Marselisborg Wastewater Treatment Plant they have reduced the energy consumption significantly by optimising all processes. In 2015, their net energy production was 153%. Also Egaa Wastewater Treatment Plant is energy self-sufficient and even produces 50% more energy than what is consumed.

OFFICIAL OPENING OF THE COMPETENCE CENTER

NORWAY

By the end of August, AVK Norway AS officially opened our Competence Center at our main office in Sandefjord. This is a training area where we will offer practical training and product demonstrations.

By Ellen Elise Nordin,
Project,
AVK Norge AS

and

Janne Odberg,
Financial Manager & HR,
AVK Norge AS

The main purpose of this centre is to share knowledge, present new solutions, and invite to professional and qualified discussions. Our target group is our own employees as well as customers, end-users and consultants. We want the participants to be familiar with our technical equipment and to learn the proper use of AVK products.

"We already had a few classes and received positive feedback. Our goal is to make the participants familiar with our products. In addition, the center is facilitated to implement typical operations such as drilling under pressure for tapping, and to operate pressurised systems. At the end, it will be a mini-VA school (VA = water and sanitation) with focus on the solutions we deliver," says Sales Manager VA, Martin Rud.

"The products develop rapidly and people participating in project planning will have great benefits of knowing the advantages and possibilities of new solutions. The assembly process and security tasks are natural parts of the totality" underlines Product Manager VA, Kjetil Myhra. He also sees the Competence Center as a gathering point for professional and meaningful discussions.

10 bars pressure

As we present new solutions and technologies, we simultaneously facilitate personal training and practical hands-on experience. It requires knowledge and great awareness to operate valves and pressurised systems. Major forces are caused by moving water and manhole safety is a very central topic at the courses held by AVK Norway.

The Conference Center is equipped with a valve system where we are able to demonstrate gate-, air- and regulation valves up to 10 bars pressure. We can also perform under pressure drilling at the same 10 bars pressure. In the future, we will install a water meter which will be communicating with computers and/or by phones.

A result of voluntary work

Some of the work getting the Competence Center ready has been performed by the employees outside regular working hours.

It is a privilege to have such dedicated employees, and we would like to take this opportunity to thank them all for taking the time to help us getting this area ready. We were really proud to present the result at the opening in August.

TEC ARTEC GERMANY

Located in Oranienburg, 30 km north of Berlin, Germany, TEC artec GmbH is one of the smallest units within the AVK Industry segment. The company became part of the AVK Group in 2012 and is now fully owned by AVK Holding A/S.

By Niels-Erik Andersen,
AVK Ambassador,
AVK Holding A/S

TEC artec sells and manufactures products to power plant systems and the gas industry. The products provide shut-off, control, regulation and protection, whereby the physical and chemical characteristics of the conveyed media play an important role. Engineering and services for valves and systems complete our product offer but still, the following three product types form the core of our business:

- desuperheaters (in various design variations)
- turbine by-pass valves
- control ball valves/shut-off ball valves

During 2016/17, TEC artec has been supported in sales by various operational companies within the AVK Group; AVK Valves (Shanghai) Co. Ltd, World Valves B.V., InterApp AG, AVK Flow Control and right now targeting sales orders from AVK Armadan Sp. z o.o. – all representing the best possible synergy within the Group.

On page 36-37 you find a case story from a resent successful cooperation between AVK Flow Control in Denmark and TEC artec.

Among our other success stories are the supply of seven pcs shut-off ball valves DN100 with Auma actuators for a client of AVK Valves (Shanghai) Co. Ltd., and the supply of a Desuperheater valve by InterApp Spa, Roma Branch Office, to the end user Caribbean Gas Chemical in Trinidad via Mitsubishi Heavy Industries Ltd.

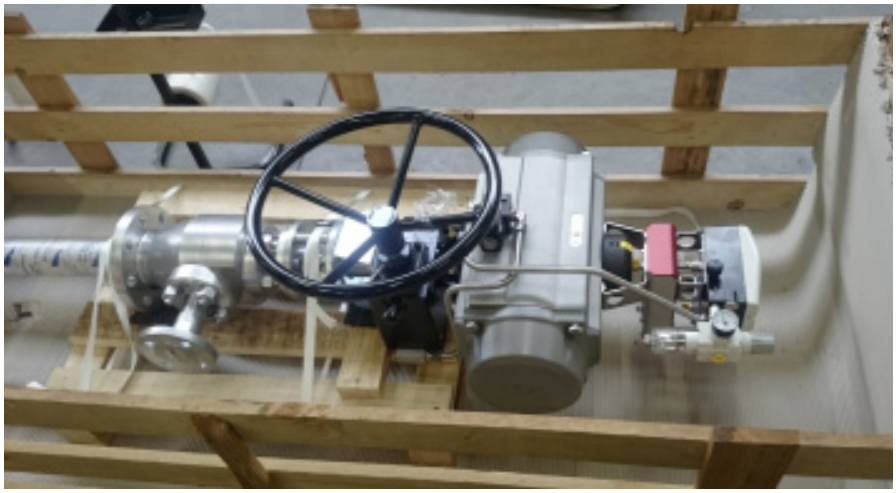
We look forward to continuous support from the AVK Group of companies with the confidence of having unique quality products to offer your clients.

Desuperheater

Turbine by-pass valve

SUSTAINABLE ENERGY: FROM BIOMASS TO ELECTRICITY

UNITED KINGDOM



TECtemp desuperheater with 90° rotation opening

A biomass combined heat and power plant, estimated to generate as much electricity as used by 52,000 homes yearly, will supply two large pharmaceutical companies in the Northern England with power and will export excess electricity to the national grid. AVK Flow Control and TEC artec have supported the project with the delivery of the turbine bypass system for the plant.

By Charlotte Brønsted Rasmussen,
Marketing Coordinator,
AVK International A/S

and

Robert Brinkmann,
Key Account Manager,
TEC artec

A renewable energy source
Biomass is a renewable and sustainable source of energy that can be used to create power, and a biomass power plant is fuelled by organic materials.

At Cramlington Biomass CHP Plant – expected to be up and running by the end of 2017 – the CO2 savings of 56,000 tonnes annually compared to a gas-fired power plant leads to a reduction of greenhouse gas emission equivalent to taking 25,000 cars off the road every year.

Use of reheat technology
With the reheat technology the steam is led through two heating processes and two turbines for an increased utilisation. This improves fuel efficiency and provides a higher plant output – an advantage to both the economy and the environment. The Cramlington project will be the first reheat biomass plant in the UK.

250,000 tonnes of local wood
The plant in Cramlington will be wood-fired and fuelled from local wood provided by local growers and forest industry suppliers from an abundant local resource. There are 500,000 acres of forestry within 60 miles, and thus transforming biofuel into electricity is not only beneficial for the environment but also for the local industry and economy.

The facility is designed for a yearly throughput of nearly 250,000 tonnes of biomass expected to annually generate 223 GWh of renewable electricity. The output in the form of saturated steam heat is supplied to two large companies in the region and

Manufacturing and welding of the components

the remaining power will be exported to the national grid.

Turbine bypass
The turbine bypass system is a group of valves protecting the turbine in a power plant from steam not having optimal parameters. During start-up of the turbine or in case of a turbine trip, the generated steam needs to be reduced by temperature and pressure and routed to the condenser or into the reheater.

The turbine bypass system usually consists of a redundant high pressure steam shut-off and a steam pressure reducing valve with an integrated desuperheater. The desuperheater is connected to a feedwater line equipped with a water pressure reducing valve and a water shut-off valve. The Cramlington CHP Plant bypass system ends with a dump tube, consisting of several perforated discs, located upstream of the condenser.

Desuperheater
Desuperheaters are part of the turbine by pass system and there is a further demand for these in several other places in a power plant as well – also as non-integrated solutions without upstream steam pressure reduction. The main task for these desuperheaters is accurate attemperating without abrasing downstream system components for every load case. This requires quick and complete evaporation which is only achieved by having a sequential opening of many small nozzles.

Unique deliveries
The Cramlington CHP plant is delivered by the Danish power plant specialist BWSC and the turbine bypass system for the plant is delivered by AVK Flow Control and TEC artec. Due to the short distance between the bypass system and the condenser, the intermediate pipe with studs for temperature and pressure measurement and the dump tube were also included in the scope of our supply.

Our turbine bypass system is made simple and optimised for durability and for a longer lifetime. Our stand alone desuperheaters provide fine spray and quick, complete evaporation. In addition, the opening by 90° rotation makes the design unique.

The bypass and other valves are packed and shipped after final inspection from the customer.

ORBINOX KNIFE GATE VALVES FOR BHP BILLITON OLYMPIC DAM UNDERGROUND PROJECT

The Olympic dam mine is a large poly-metallic underground mine located in South Australia, 550 km nnw of Adelaide. It is the fourth largest copper deposit and the largest known single deposit of uranium in the world, although copper is the largest contributor to total revenue. Approx. 70% of the mine's revenue comes from copper, 25% from uranium and the remainder from silver and gold. BHP Billiton has owned and operated the mine since 2005.

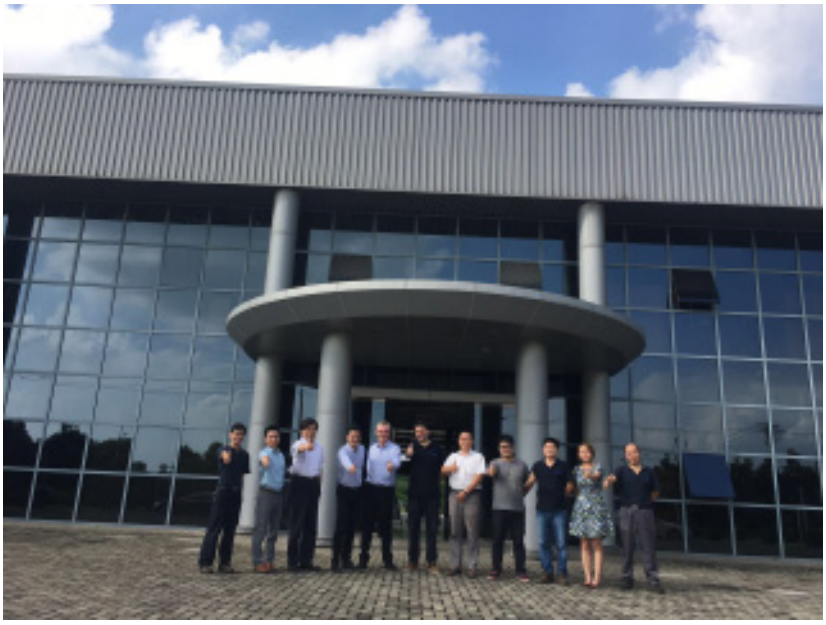
By Umesh Khatri,
Area Sales Manager SA,
AVK Flow Control Pty Ltd

A request for quotation (RFQ) was issued by BHP including the specifications of materials required for the underground project, to a few preferred valve suppliers of the site. With a competitive pricing structure, a high-quality and durable product supplied and a targeted lead-time of 10 weeks, AVK Flow Control successfully satisfied all requirements of the RFQ with the order consisting of 20 x 100mm Orbinox BT series bi-directional knife gate valves in 316 stainless steel material construction. The valves were shipped to BHP on 15 August 2017 with the execution (commissioning) of the project to commence in September 2017.

AVK SYNTEC ACHIEVES NATURAL GAS SECTOR'S ISO/TS 29001:2010 STANDARD

CHINA

AVK Syntec achieved the natural gas sector's highest safety based standard, ISO/TS 29001:2010, for the manufacture of Certus and Magnus polyethylene (PE) valve ranges. In addition, AVK Syntec also achieved the latest ISO 9001:2015 version for its manufacturing facility located in Wujiang, China.



By Mikel Jaimerena Muga,
Product Manager,
AVK Syntec (Anhui) Co., Ltd.

AVK Syntec invested over a year of hard work in close cooperation with Michael Christensen, Group Quality Manager, in securing these standards with strong focus on risk, traceability and new product introduction management.

ISO/TS 29001:2010 requires manufacturers to develop a continuous improvement regime across their entire business, from suppliers through to product delivery.

As part of the AVK Group, AVK Syntec already holds ISO 9001:2008 for its quality management system and EN, ISO, British GIS Kitemark and Chinese GB certificates for specific products, but it was also important for the company to achieve the highest standard recognised within the gas industry as a means of driving quality up and above its own business and across the sector.

LARGE DIAMETER GAS VALVES FOR LONDON REGENERATION PROJECT

AVK UK Limited has been awarded a contract by National Grid and Elster to supply in total 15 large diameter gas valves for the 'Fulham Gas Holder Site Regeneration Project.' With an approximate value of £250k, the valves are a mixture of 24" and 36". The works on the site renovation began in the summer of 2016.

By Alan Bite,
Product Manager,
AVK UK Limited

The disused gas holder site is located in Sands End and falls within the London Borough of Hammersmith and Fulham's South Fulham Riverside Regeneration Area. The gas holders are located between Imperial Road, Michael Road, Gwyn Close and the London Overground rail line at the rear of the site.

Landowner National Grid was granted planning permission by the London Borough of Hammersmith and Fulham in November 2014 to dismantle five of the six gas holders at Imperial Road, Fulham.

By removing the gas holders, National Grid will make way for the long-term regeneration of the site.

The four Grade II listed buildings on the site, including gas holder No. 2 – the world's oldest gas holder – will be preserved and incorporated into a new outline master plan for the site.

This plan will set out a long-term vision for the redevelopment of the site with new homes, shops, offices and public spaces.

The dismantling works are an important first step towards regenerating the site and delivering an exciting future for the Imperial Road area, in the heart of Fulham.

Alan Bite, AVK UK Limited, Product Manager, said, "We are delighted to have been awarded this supply contract for the 'Fulham Gas Holder Site Regeneration Project,' it is

an important step in the London regeneration program. We have already successfully supported National Grid on the 'Battersea Gas Holder Project' and will continue to work closely together on further London regeneration gas holder schemes."

As part of the solution, the AVK Donkin engineering design team based in Chesterfield, worked closely with National Grid and Elster to ensure that the design was a resilient one that would ensure the longevity of the project.

Alan continued, "The first key challenge for us was to ensure that the valves could seal bi-directionally for this project. This is because uniquely, testing and operational flow is in opposite directions, thus requiring a 100% gas tight seal in both. The AVK team succeeded in redesigning the valves to achieve this.

The second challenge was to make the valves suitable to be fitted in either vertical or horizontal orientations; also at varying installation depths. The AVK design solution to this challenge was to supply rollers to support the valve doors, and also bevel gear boxes where appropriate."

Through collaboration between AVK and the project delivery team, a fully sustainable solution was provided for this prestigious project.

HIGH QUALITY PRODUCTS, FOR HIGH SERVICE SECURITY

SERBIA

By Branislav Milošević,
Regional Sales Manager,
The Balkan States
AVK International A/S

In the beginning of 2017, Waterworks Subotica finalised the reconstruction of Water-Intake 1 which is the central plant for providing potable water for the city of Subotica and from here, depending on the season, 75 – 85% of the required water quantity is supplied.

The reconstruction was completed according to the waterworks' strategy of installing AVK valves on at least all important positions of the network and thus, a complete line in dimensions from DN450 to DN600 is now equipped with AVK gate valves.

Only a few years ago, Waterworks Subotica received and installed the first AVK valves on their facilities and since then, they have been very satisfied with the product quality and high reliability from AVK.

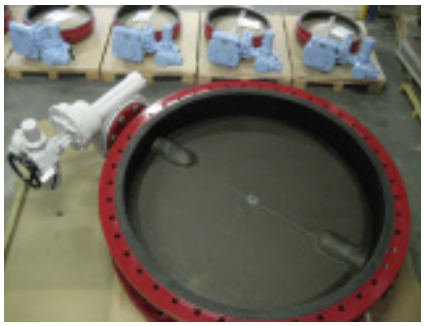
WORLD VALVE DELIVERS TWO DN1800 BUTTERFLY VALVES

INDONESIA

By Gerald olde Bolhaar,
Sales Engineer,
World Valve

In July 2017, World Valve finalised the production of two DN1800 butterfly valves for the Banten Lontar 3 Power Plant in Indonesia. The valves are being used on the condenser system for the newly built single unit coal fired power plant of 945 MW. A total investment of USD 850 million.

Being the specialist on non-standard valves, World Valve was selected as they meet all special demands with regards to the material combinations and deliver these big size valves with a short delivery time at a very competitive price level. The main components of the valves were all produced locally in the Netherlands. Assembly, testing and coating were carried out at the World Valve factory. World Valve was awarded this job thanks to the great efforts of its partner PT Trias in Indonesia.



Features

Scope of supply:	Butterfly valves with electric actuators, counter flanges, bolts and nuts
Valve size:	DN 1800
Pattern:	Double flanged
Pressure class:	PN 6
Working pressure:	1,5 bar
Medium:	Water
Body material:	ASTM A216 WCB
Disc material:	Steel fully lined with ebonite
Liner material:	EPDM
Actuation:	Rotork IQ3 electric actuator, 380V/50Hz/3Ph
Customer:	PT PJB
Quantity:	2 pcs.

WHO NEEDS A CHAMBER?

GEORGIA

By Stefan Stegenga,
Sales & Marketing Manager,
AVK Plastics

In many markets, valve access chambers are still being built to grant access to a lower buried valve. The main purpose of these chambers is to easily replace or maintain inferior quality valves.

However, when using high quality AVK valves in combination with an extension spindle, a support tile and a surface box, the time-consuming construction of valve access chambers belongs to the past.

A new AVK customer in Georgia was not accustomed with this principle, they were simply not aware that this easy solution existed.

During a well-organised field trial, the Georgian customer experienced the installation advantages and concluded that this was the product they wanted to use in future.

AVK AROUND THE WORLD

REPLACING VALVES IN AYR TOWN CENTRE, SCOTLAND

By Steve Browett, Engineering Technician, Bryan Donkin Valves Limited

OLD HYDRANT REPLACED BY NEW ONE IN VIBY, DENMARK

By Brian Søby, Senior Business Application Consultant, AVK Holding A/S

CONTROL VALVE AT SEMINAR IN MOROCCO

By Martin Børsting, Product Manager, Control Valves, AVK International A/S

The Lydec engineers were really engaged in the S859 control valve training, and they loved all the stainless steel, and the way I could change this awesome valve into different applications, in only a few minutes.

COLOURFUL PIPES IN ISRAEL

By Claus Møller-Nielsen, Market Development Manager, AVK International A/S

During a recent trip to Israel, I came across a different and more colourful installation of valves and pipes. They used the pink colour for installations with purified wastewater which is used for watering crops.

COMPETITION

We are happy to announce that the winners of the competition in AVK InterLink no. 49 are:

- Alba Medín, AVK Válvulas S.A., Spain
- Mohd Hafiz, AVK Valves Manufacturing (M) Sdn. Bhd., Malaysia
- Trisia Hartvigsen Larsen, AVK Holding A/S, Denmark

Gifts are on their way.

The correct answer is: AVK Repico

New competition:

Which product does this enlargement show?

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:

Belt with AVK logo on the belt buckle

Beach towel with valve

Kähler vase in blue or white

AVK Holding A/S
Bizonvej 1
Skovby
8464 Galten
Denmark

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

Expect... AVK