AVK SOUTHERN AFRICA

NETWORK SAFETY SOLUTIONS
MAXIMISING YOUR EFFICIENCY
MINIMISING YOUR COSTS
PROTECTING YOUR SYSTEM

CONTENTS

WHO WE ARE

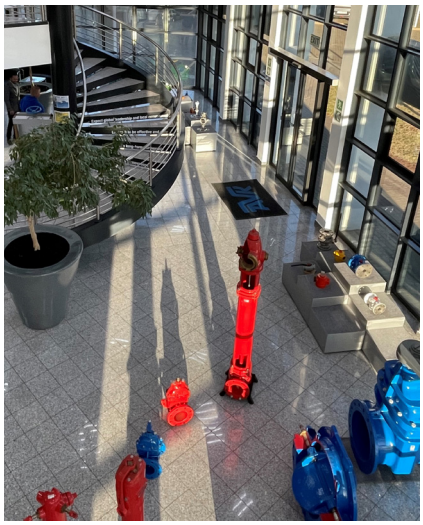
The AVK Group is a privately owned group that comprises of more than 80 companies across the world with headquarters based in Denmark. AVK Valves Southern Africa, was established in Pretoria, in 1991. After acquiring a major stake in the Premier Valves Group, AVK Southern Africa relocated to Alrode, Gauteng.

As AVK Southern Africa, the Premier range of products continues to be marketed by AVK Valves as a brand, together with the AVK brand of products.

AVK's offices and factory was built on the existing Premier Valves premises in Alrode in 2014. The expanded premises covers a profound area of 46 000 m², which includes a 1 200 m² training facility, a 2 500 m² office area and a 2 000 m² distribution centre. The two companies have worked closely together since the merger to expand and strengthen the overall position of AVK Southern Africa by focusing on valves and accessories for water distribution, water treatment, waste water handling, dams, reservoirs, pump stations and fire protection.

Together, AVK and Premier Valves have over 60 years of experience in design, development who we are and the production of valves and have an established distribution network that services all Water Sectors in Southern Africa.

All products offered by AVK meet the relevant international quality and design standards.



Furthermore, all products are supported by experienced sales and service teams to ensure the best possible before–and–after sales service. All appointed distributors receive full technical training and support from AVK and Premier Valves.

In December 2016, AVK Southern Africa made a significant investment by purchasing the intellectual property (IP) and all brand assets of Gunric Valves. This strategic move has increased AVK's product range to include the innovative triple eccentric butterfly valve and tilting disc check valve. Gunric products will continue to be manufactured at the existing factory facility in Robertville, Florida. Investing in Gunric has not only increased AVK's local manufacturing footprint but deepened the product programme offering to customers.

AVK SOUTHERN AFRICA NETWORK SAFETY SOLUTIONS

Water is a threatened resource in Africa. We have a responsibility to protect and secure water for the next generations and a growing population. AVK Control valve Network solutions, help toward reducing water loss by maintaining a certain pressure, flow or level control in your networks. This is a major contribution to efficient water supply management regardless of changes in the supply network.

Consequences of water loss

For water utilities, 'non-revenue water' is water that has been treated and transported via pipeline networks but "lost" before it reaches the customer. Due to leaks, theft or metering inaccuracies it is a financial loss to the Water boards and puts even further strain on our available water resources.

From an environmental perspective, the significant amounts of life sustaining water which is lost, may not be recovered. The resources required to treat and distribute water may also not be recovered.

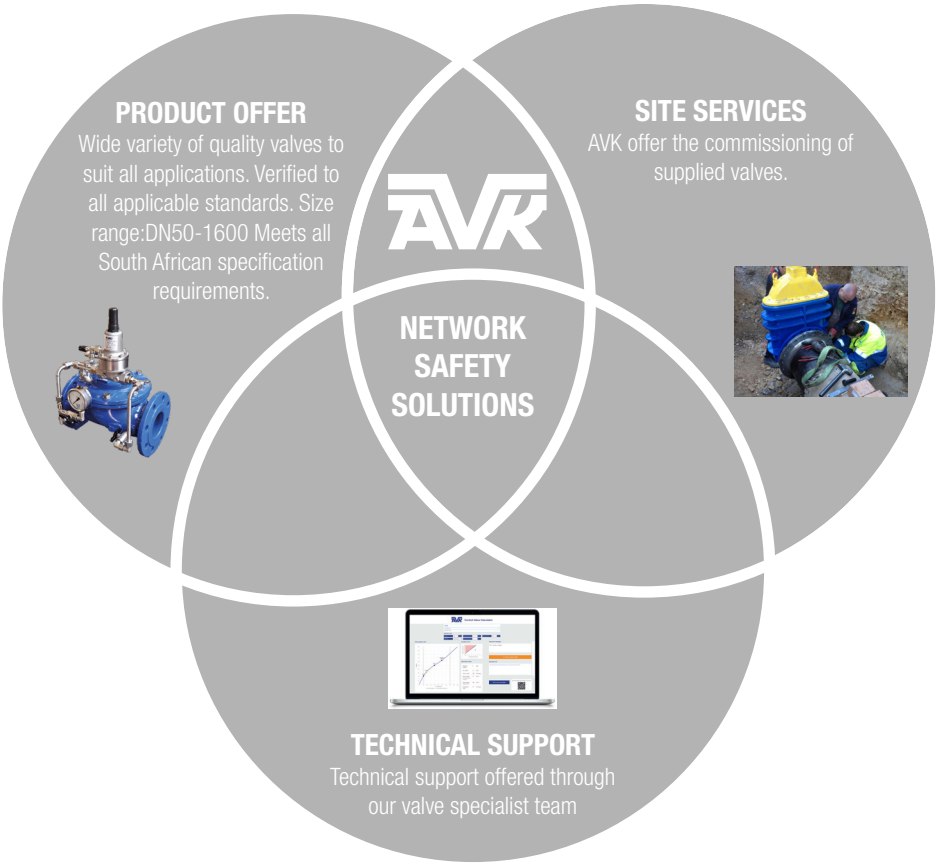
Selecting the correct valve

Selecting the correct valve in both diameter and type will allow water utilities to manage their networks more efficiently during any 24 hour period, and it is here that the valve manufacturer's knowledge of how best to use his own product really pays dividends. There are several valve types that are used to protect water systems from the onset of damaging phenomena such as water hammer, air entrainment and vacuum pressures.

These conditions will seriously affect system performance, ranging from reduced efficiency to catastrophic system failure. The correct valve type, size and installation in the correct location can ensure that your system will operate effectively, efficiently and safely throughout its operational lifetime.

Network Safety Solutions

AVK's Network Safety Solutions offer has been developed to help the industry efficiently and safely meet its targets, whilst reducing leakage and service failure across maintenance and replacement activities, taking into account the various Water Boards directives and changing environment. As the catastrophic and dramatic failures make the news, every failure impacts on the network's performance. The purpose of this guide is to help network operators and designers minimise the risks of network failure and extend the life of their assets.



VACUUM
NEGATIVE PRESSURE IN A PIPELINE

Vacuum can occur in pipes due to a lack of air in the system as shown in the image on the right, causing severe irreversible issues. This can be prevented by installing air valves.

Vacuum: negative pressure in a pipeline causes it to implode and buckle in extreme conditions.

Vacuum in a pressurised pipe system, can be caused by: inefficient air valves not reacting to hydraulic conditions, air valves having historically failed due to lack of maintenance and air valves being absent from the pipeline altogether. This occurrence can cause major damage to both the efficient performance of the pipeline and premature failure of the pipeline. Correctly sized and located air valves offer a solution to this issue.

Air valves are visually associated with the release of air from the system, and therefore commonly known as air release valves. However, this name is misleading as their other function, introducing air in to the system, is equally as important.

Associated common hazards

Apart from preventing the flow, the most common hazards of vacuum are:

1. Enhanced problems and damage to the pipeline causing:
   - A. Suction of contaminants, mud and dirt through faulty connections, cracks in pipes and accessories.
   - B. Suction of seals and gaskets, in-line fittings and other internal accessories of pipes.
   - C. Uncontrolled suction of injected chemicals into system.
   - D. Pipe or accessory collapse.
2. In some cases the absence of an air cushion can increase the damage of surge and slam phenomena. (See page 6).
3. Reduces whole life of pipe asset due to positive and negative pressures acting on the pipe wall. This can result in fatigue loading which will weaken and eventually cause failure of the pipe wall. This is especially important on ageing assets where the pipeline material degradation is likely.

Continuous air flow

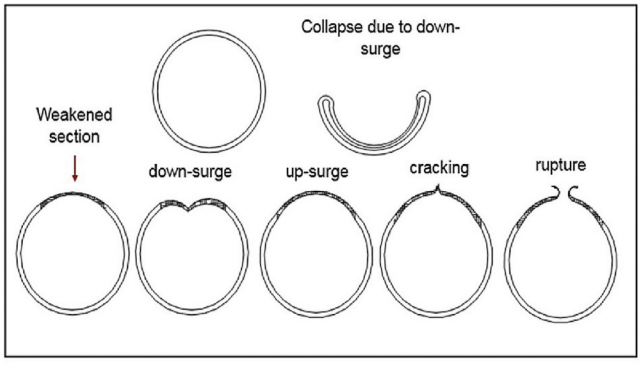
Managing air discharge in the system requires the correct level of air discharge or vacuum break to ensure that air can be drawn back into the main during negative pressure situations. In an industry with ageing assets and a desire to extend the working life, negative pressures, left unmanaged, have been proven to cause additional issues that can extend to contaminated material or fluids in potable water pipelines via old joints or minor cracking of the mains.

Professor Joby Boxall in his joint report of 2015, demonstrated that three requirements that must coexist for contaminant ingress to take place within water distribution systems;

- The existence of a contaminant source external to the distribution pipe (contaminated ground water).
- A pathway providing a route into the system (failed or failing pipe joints or limited leaks).
- A driving force (negative pressures within the pipeline).

As such, to allow a system to remain unprotected from this form of contamination allows the potable water to run the risk of becoming contaminated.

One solution to this is to remove one aspect of the three requirements: the driving force. Air valves are the most efficient and cost effective tool to achieve this and by installing and maintaining a system of air valves, negative pressure is managed and removed from the equation, allowing the ageing network to remain protected.



Fox, Sam & Shepherd, Will & Collins, Richard & Boxall, Joby. (2015). Experimental Quantification of Contaminant Ingress into a Buried Leaking Pipe during Transient Events. Journal of Hydraulic Engineering. 142. 04015036. 10.1061/(ASCE) HY.1943-7900.0001040.

AIR ENTRAINMENT

Air is present in all water and waste water pipelines. The air may be absorbed at free surfaces, or entrained in turbulent flow at the entrance to the line, changes in direction or incline. The air may therefore be in the water or in the form of bubbles or pockets.

Air pockets

An air pocket implies a relatively large volume of air, likely to accumulate on top of the pipe cross section. The pockets may travel along the line to peaks. Where they will either remain in equilibrium, be entrained by the flowing water or be released through air valves.

Air valves are globally recognised as the most effective airflow control valve associated with fluid dynamics. Their contribution to efficient flow of fluids engage with energy savings, extension of the pipeline asset life and management of surge characteristics that can damage new and older pipelines.

Some of the issues and essentially dangers attributed to the presence of air within pressurised pipe systems can be categorised as follows:

- Reduction of effective bore of pipeline, causing in extreme cases complete blockages.
- Measurable energy losses.
- Water hammer or localised surges. (See page 6).
- Meters being affected and misreading flows in conjunction with premature failure due to internal damage to meters.
- Localised reduction in water supply or pressure .
- Extensive corrosion of pipeline resulting in premature failure.
- Excessive localised pressures that could cause a danger to operators during maintenance or operation.

Eliminating the air

Air valves are frequently used to eliminate the air that is on the crown of the pipe or at changes in incline. Air valves are classed in two basic designs:

- Kinetic or large orifice, used to release large quantities of air during the filling of the line and to draw air in from the atmosphere during vacuum conditions in the line.
- Automatic or small orifice, the part of the valve that will continue to operate when the pipeline is under full pressure and releases small volumes of high pressure air and double orifice or combination air valve, which combines kinetic and automatic into one valve.

Air entrainment; Air collecting at high points of the system reduces pump efficiency, causes corrosion and then as it is pressurised will create a small area of very high force, which can ultimately burst pipes.

Recommended locations of the air valves would be catagorised as follows;

- Pump stations: after the pump and after the check valve.
- After and before shut-off valve.
- After deep-well pump.
- On long hydraulic gradient water supply lines.
- At peaks relative to hydraulic gradient.
- At the end of lines.
- Before water meter.

Air bubbles

The air bubbles themselves often form in the following locations or are caused by conditions within the system:

- At a throttle or orifice.
- Where there is a pressure drop.
- At a branch or pipe joint.
- From a valve opening and closing rapidly.
- From shock waves, due to sudden closing of valves or cessation of pump operation.
- Pressure drop at the pipe end, due to sudden opening of valve.

WATER HAMMER

Water Hammer occurs due to a rapid deceleration of forward velocity in the pipeline system. This creates a shock wave of inert energy within the fluid and a hammering noise in the pipe system. This can cause a localised increase in pressure and will continue to travel along the pipeline until the energy has dissipated.

Water Hammer; Typically caused when a body of water hits an obstacle; for example a valve which is closed too quickly, will send a shock wave along the pipe with the potential to destroy both the pipe and equipment.

Reducing water hammer

The risk of water hammer can be greatly reduced by operating the valves in a controlled, slow manner and managing the potential hammer scenario. Using a selection of various automatic valve types, each of which provide protection to the system in different ways as follows:

Air Valves

In system locations where water column separation can occur. When separation occurs, for example a pump trip scenario, the air valve will allow a considerable volume of air into the pipeline to avoid vacuum, but can also restrict the exhalation of air into the atmosphere so that when two high-energy water columns re-join, atmospheric damping takes place to prevent pressure surges.

Automatic Control Valves

Surge anticipating valves have specially designed pilot systems that automatically senses when a high pressure event will occur, for example, on a pumped system. The pilot opens the main valve allowing maximum flow through the valve, until the pressure reduces sufficiently. The main valve then closes slowly to prevent the risk of water hammer.

Non-return Valves

To prevent flow reversal entering into the pump, well or intake, the rate of fluid reversal is not a cause for concern and standard check valves will perform well, however, in pumped systems where fast flow reversal can occur, the selection of the correct check valve is crucial.

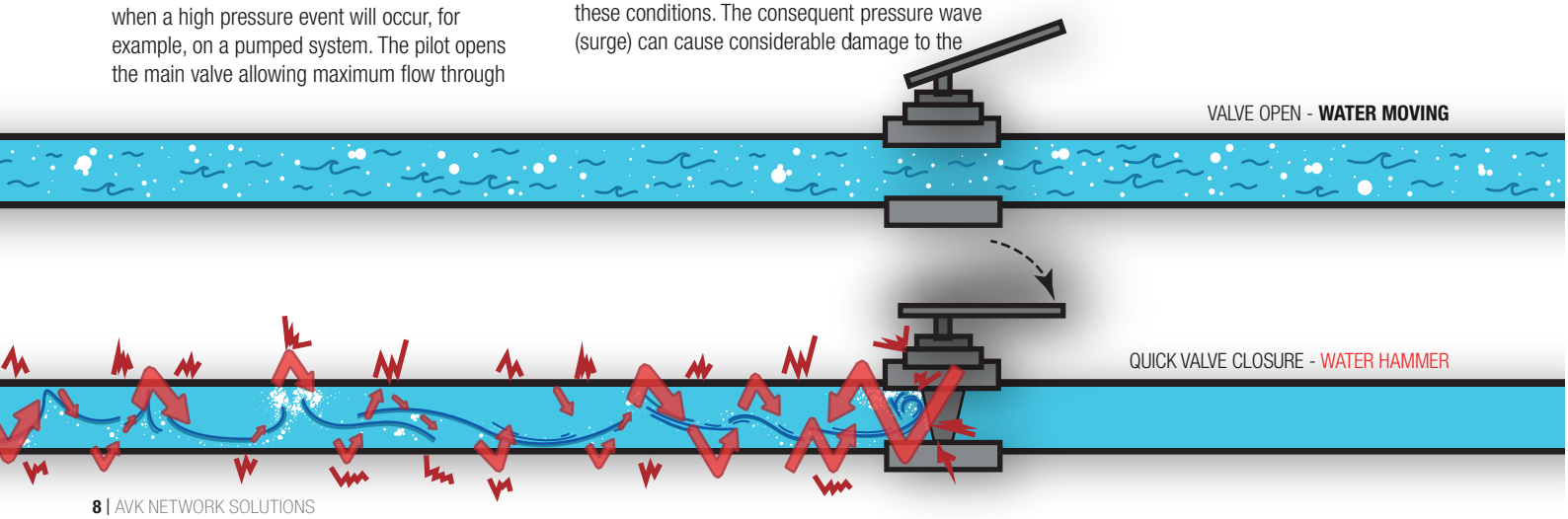
Pressure wave surge

If a pump stops and the forward flow reverses back down the line towards the pump before the check valve has fully closed, the flow will force the valve door to slam onto its seat. This scenario can almost instantaneously stop the reverse flow and it is this instantaneous stoppage which results in pipeline water hammer. This can produce loud hammer noises which is not the noise of the valve coming into its seated position but is the stretching of the pipe under these conditions. The consequent pressure wave (surge) can cause considerable damage to the system including pipe cracks, bursts, cavitation and implosion due to vacuum pressures being formed. It is also important to note that these failures may not be due to one single, large surge pressure but by repeated surges which eventually cause fatigue failure of the system.

Safe and trouble free system- check valve slam

To prevent the occurrence of check valve slam, the valve should close in a quick, controlled manner to prevent the onset of reverse flow or very slowly once reverse flow has developed. For a check valve to close slowly, this requires additional ancillary equipment such as hydraulic dampers which act to cushion the valve door as it comes into its seated position.

This slower closure does allow the fluid to pass through the check valve until it closes and consideration must be given to the upstream pump to ensure that it is suitable for reverse spin, flow and potential damage to upstream fittings.



PRESSURE CONTROL

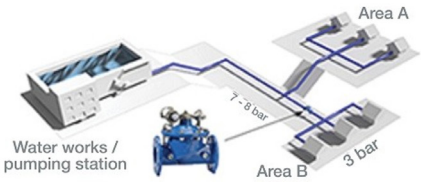
Pressure reducing control valves

A pressure reducing control valve will automatically reduce a higher inlet pressure to a lower outlet pressure which is set to the network requirements, regardless of changes in the inlet flow rate or pressure.

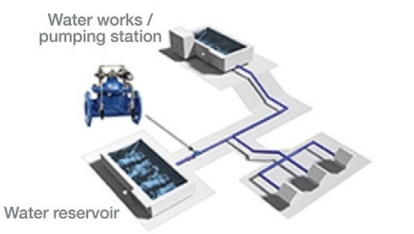
The pressure reducing pilot senses the outlet pressure through the connection on the valve outlet port. Under flowing conditions, the pressure reducing pilot reacts to small changes in the inlet pressure and controls the valve position by modulating the pressure in the top chamber.

When the inlet pressure changes according to the set-value of the pilot, the pilot modulates and ensures a constant outlet pressure once Example: The incoming pressure is 7-8 bar, which is appropriate to supply the consumers in area A but too high for the consumers in area B. Solution is a pressure reducing control valve which is installed to reduce the pressure to 3 bar on the supply pipeline in area B.

Pressure Reducing Control Valve



Pressure Sustaining / Relief Control Valve



Pressure sustaining/relief control valve

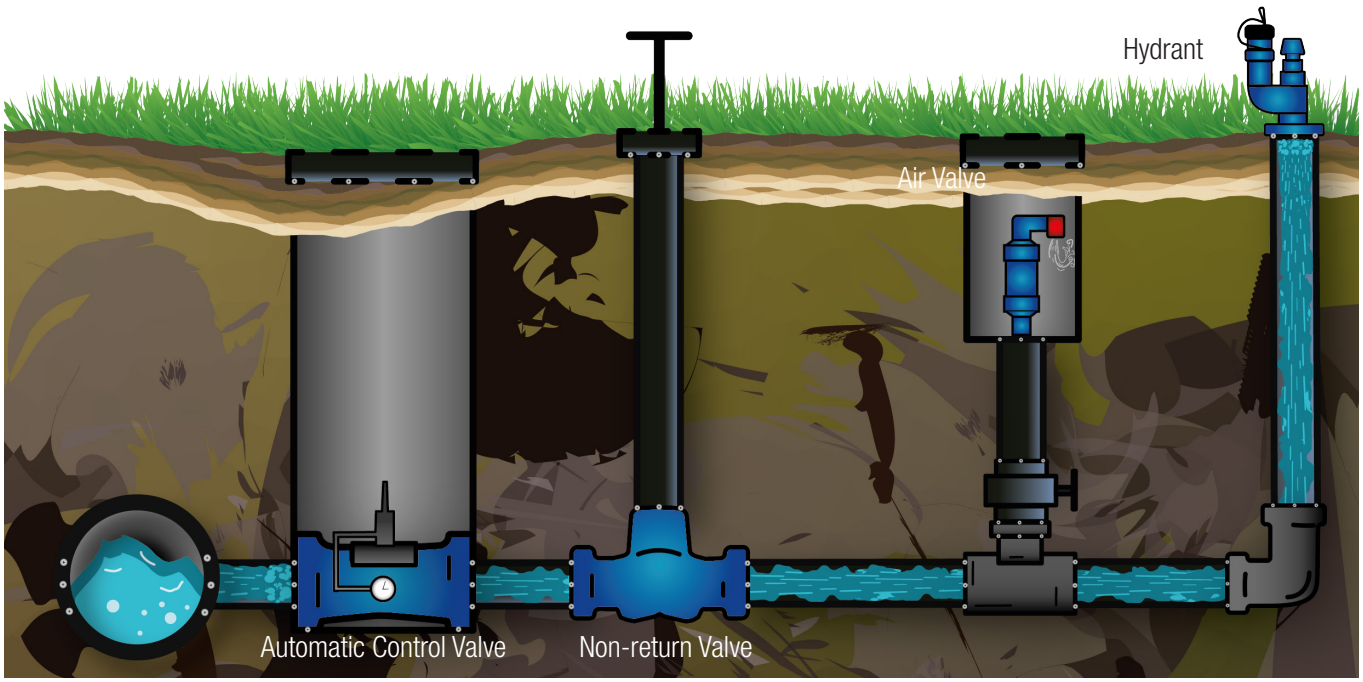
A pressure sustaining control valve automatically maintains a minimum pre-set inlet pressure by relieving excess pressure regardless of changes in flow rate.

The pressure sustaining pilot reacts to small changes in the inlet pressure, controlling the valve position.

Should the inlet pressure fall below the set point the main valve closes or modulates to ensure the set point of the inlet stays at the required pressure. The sustaining valve will hold a minimum back pressure on the inlet and normally allows flow.

The relief valve normally remains closed, only opening when pressure exceeds a pre-determined set point, which is installed on T piece off the main line. To relieve pressure spike in a pipeline it must be re-directed to relieve the pressure.

Example: When the water reservoir fills the pressure drops leaving the consumers without water. Solution - a pressure sustaining control valve is installed to maintain the pressure for the consumers.



TECHNICAL INFORMATION

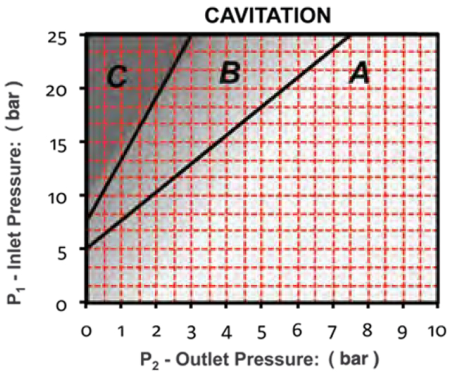
About Cavitation

Locate inlet and outlet pressure on the cavitation chart. If point location falls in shaded area C or B, continued use of a standard valve can cause deterioration in valve body and produce more noise and vibration.

AREA A – standard valve

AREA B – valve with anti-cavitation trim

AREA C – valves in series are an option to reduce the pressure cut to a 3:1 ratio, which is acceptable.



Anti cavitation trim

To reduce the risk of cavitation the valve incorporates a double sliding cage design of AISI 316 construction. The seat slots are oriented around the plug cage. When the valve opens, flow converges in the centre of the first chamber of the seat cage, allowing the potential cavitation to dissipate. The upper slots of the internal sliding cage will divide the upstream flow before the regulating plug. The second chamber will dissipate energy before bubbles come in contact with internal surfaces of the main valve body and implode thus preventing cavitation erosion. The seat and regulating plug design will guide the velocity vortices and steam bubbles to collapse out of body and avoids damage.

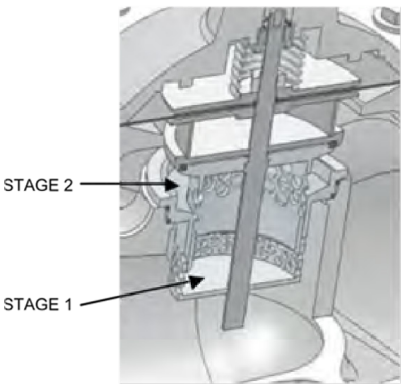
Diaphragm closing angle

The plug design associated to the angle of diaphragm when the valve is closing, ensures seat chatter will not occur, causing no "stress" on diaphragm (tension). This means that the valve is designed for controlling precisely any flow rate from zero demand up to the maximum flow, without decreasing the valve performance.

Valve selection

Check Working Conditions
Maximum Flow
Minimum Flow
Continuous Flow
Maximum Upstream Pressure
Minimum Upstream Pressure
Downstream Pressure
Pipe Size
Velocity
Electrical Current

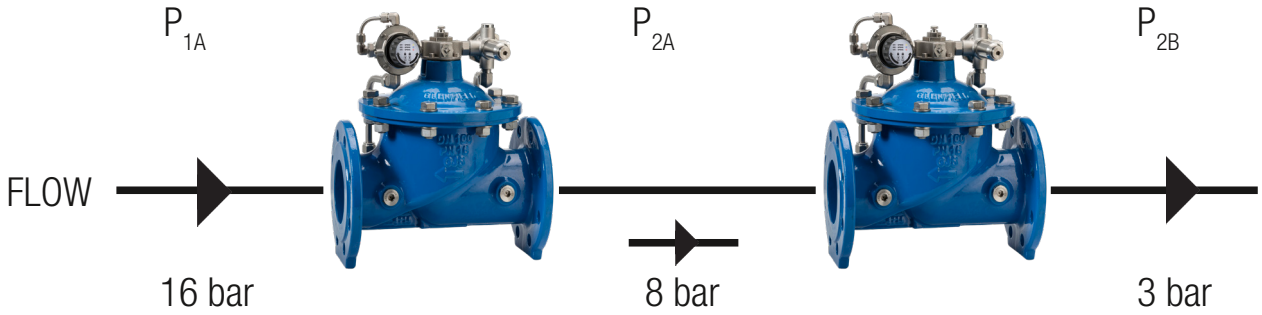
ANTI CAVITATION DUAL STAGE ENERGY LOSS SLIDE CAGE TRIM



Installation valves in series

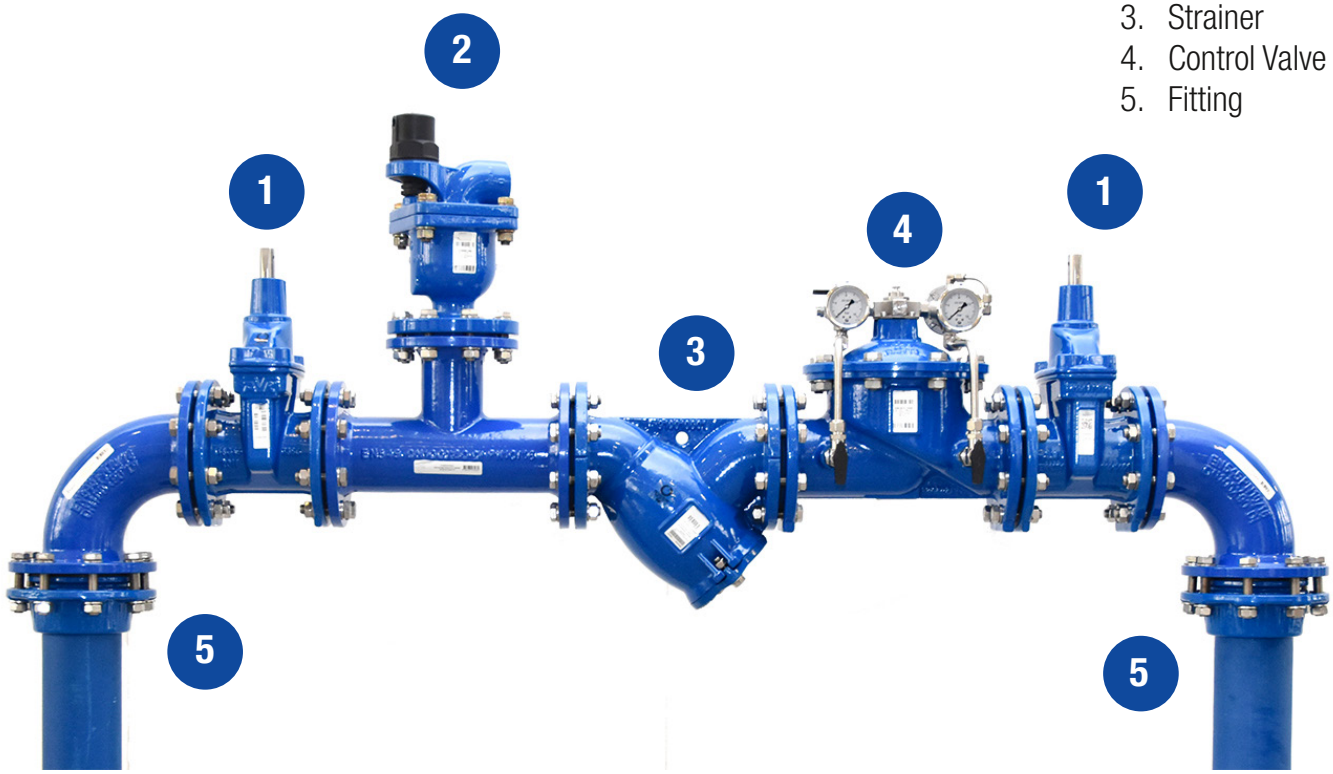
To prevent cavitation in high pressure drop application two valves in series can be used.

Example: P1: 16 BAR, P2: 3 BAR



Strainers, Air valves and Isolating Valves are a critical part of Water Network solutions.

1. Gate Valve
2. Air Valve
3. Strainer
4. Control Valve
5. Fitting



Above image is an example, always use 5 x pipe diameter of straight pipe either side of control valve as industry reccomendation.

VARIOUS SOLUTIONS OFFERED THROUGH CONTROL VALVES

Control valves are regulating valves. They maintain certain pressure, flow or level regardless of changes in the supply network, and therefore help reduce water losses and contribute to efficient water supply.

AVK offer a complete control valve range for various configurations which include the necessary associated valves used in control valve chambers. These valves include Non return valves, Y Strainers as well as the required isolation valves for ease of maintenance.

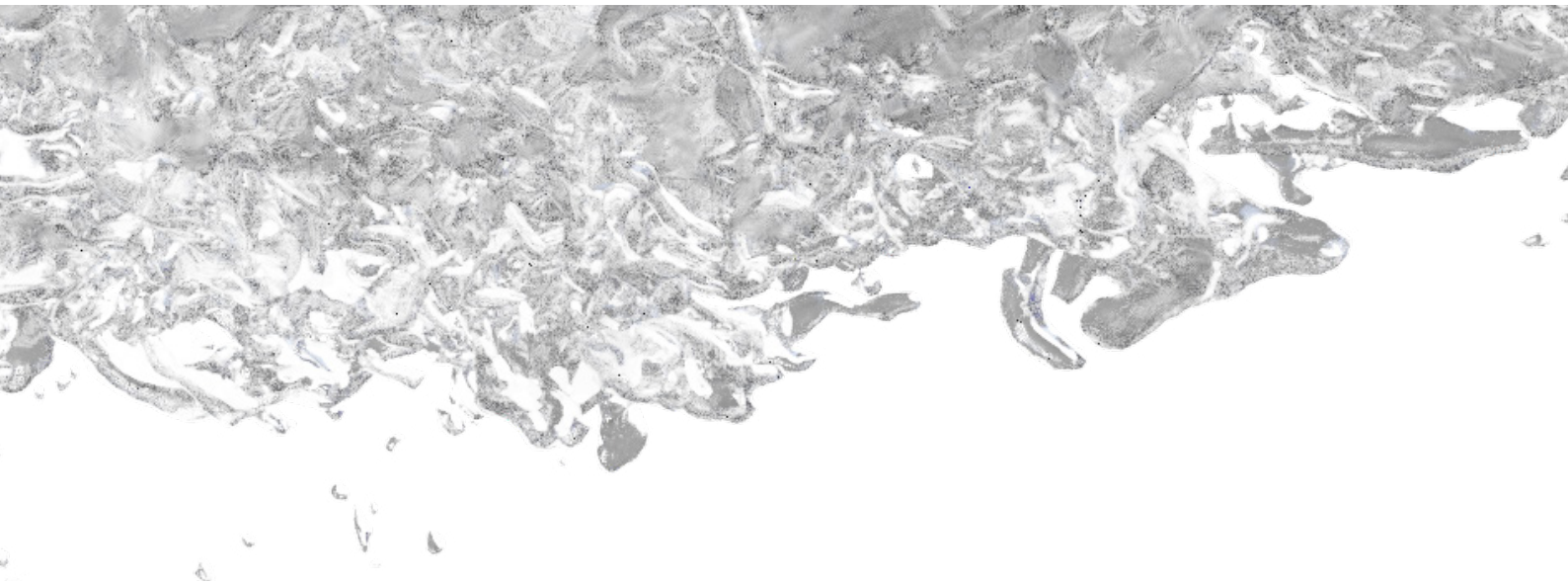
The AVK 869 Control valve Pilot System has a number of Control variations to protect Water networks.

Control Valve selection and recommendations

- Working conditions
- Maximum flow
- Minimum flow
- Continuous flow
- Maximum inlet pressure
- Minimum inlet pressure
- Required outlet pressure
- Pipe size

Variants and Configurations of Control valves

AVK offer a complete control valve range for various configurations which include the necessary associated valves used in control valve chambers. These valves include Non return valves, Y Strainers as well as the required isolation valves for ease of maintenance.



Pressure Reducing valves

Dual stage pressure Reducing Valves: Automatically protects pipe systems by reducing pressure based on a high- and low-pressure requirement. The Dual stage Pressure reducing valve is fitted with two pilots that can be adjusted to give two different outlet pressures.

A battery powered, programmable timer decides which pilot is in charge, allowing for operation with reduced pressure during low demand hours at night to keep leak losses at a minimum. At day or at known high flow demand hours the normal pressure is kept. Replaceable springs inside the pilots makes it possible to operate in different pressure ranges and keep the high precision.

Surge Anticipation and Relief Valves

Automatically protects the pipe system against pressure surges which mainly happen at pump start-up or in the event of failure. This type of protection control valve must be installed on a T off from the main line to dissipate the Spike in pressure.

The altitude Level control valves

Senses the water level and opens to refill when the level drops below a set point. It is sensing the Head of a reservoir and works off the pressure relating to this Head of Water. Every 10m is equal to 1 Bar pressure. This type of valve must have the level sensing line connected to the base of the reservoir. To pick up the static pressure of the Reservoir or Tower it must be connected to a line with no flow such as the Scour outlet of the reservoir.

Float Level control valve

Automatically controls the water levels in reservoirs or tanks by means of a Modulating Float or a Top & bottom level float known as a Bi-level float.

Modulating

The modulating float is remotely installed and controls the tank/reservoir level at a defined set point. The valve closes tightly at the required level and opens when filling is needed. Bi-level Control Float: The non-modulating float keeps the valve closed until the reservoir/tank level reaches the acceptable, minimum set point. When the minimum point is met, the control valve opens fully to refill until it meets the maximum acceptable set point and the valve closes.

Constant Flow Valve

Automatically maintains the flow demand regardless of any changes in outlet or inlet pressures. The required flow rate must be communicated to size the correct orifice plate required to control the flow rate.

Solenoid Control Valve

Automatically closes or opens the main valve by means of a solenoid valve. It can be made to fail closed or fail open.

Dual Solenoid Control Valve

Automatically controlled by electrical signals, this control valve offers full regulation of the pressure, flow and level.

Pressure Management Data controller for control valves

Provide a wide range of control applications for different kinds of electric actuated and solenoid valves. It features are a highly accurate control and auto-adaptive PID in order to fit the valves for a multitude of different hydraulic conditions. The AVK PMD is supplied with pre- configurated hydraulic control functions and data- logging features for all common applications. The AVK PMD is provided with a touchscreen operator panel to easily and intuitively program the set-up of the main functions. The PMD can also be operated remotely. The hardware and the integrated solid state memory (SSD) make it suitable even in tough environments. It can withstand mechanical disturbances, such as vibrations or thermal stress.

Multi-function control valves

The AVK multi- function control valves range includes, for example, a combined pressure reducing and pressure sustaining control valve. Many of the variants are available, whereby one main control valve may have more than one function.

Optional configurations

AVK offers a range of accessories such as position indicators and pressure gauges as well as special configurations.

CONTROL VALVE RANGE

SERIES 869/200X-001
AVK Pressure Reducing Control Valve
For use in water
DN50-300
PN16
Ductile Iron
BS EN 681-1
WRAS approved materials.

SERIES 869/201X-001
AVK Pressure Sustaining Relief Control Valve
For use in water
DN50-300
PN16
Ductile Iron
BS EN 681-1
WRAS approved materials.

SERIES 869/202X-001
AVK Flow Control Valve
For use in water
DN50-300
PN16
Ductile Iron
BS EN 681-1
WRAS approved materials.

SERIES 869/2031-001
AVK Level Control Valve
For use in water
One Way
DN50-300
PN16
Ductile Iron
BS EN 681-1
WRAS approved materials.

SERIES 869/300X-001
AVK Pressure Reducing Full Bore Control Valve
For use in water
DN50-300
PN16
Ductile Iron BS EN 681-1
WRAS approved materials

SERIES 869/301X-0011
AVK Pressure Sustaining Relief Control Valve (full bore)
For use in water
DN50-300
PN16
Ductile Iron
BS EN 681-1
WRAS approved materials.

Sizes DN350 to DN600 is available on request
Design Pressure PN10 also available for sizes DN50-DN600 on request.

Variants

Pressure control
Pressure Reducing : SFM
Low Pressure Reducing : SFM
Pressure Sustaining : SFM
Pressure Relief : SFM
Pressure Reducing – Solenoid Shut Off : MFM
Pressure Reducing – Pressure Sustaining : MFM
Pressure Reducing – Pressure Sustaining Solenoid Shut off : MFM
Pressure Reducing – Check valve : MFM
Pressure Sustaining – Electric Shut off : MFM

Level control
Float Level Valve : SFM
Altitude Single Level – Solenoid Shut Off : MFM
Altitude Single Level – Pressure Sustaining : MFM
Altitude Single Level – Pressure Sustaining – Solenoid Shut Off : MFM
Modulating Float Level – Solenoid Shut Off : MFM
Modulating Float Level – Pressure Sustaining : MFM
Modulating Float Level – Pressure Sustaining – Solenoid Shut off : MFM

Flow control
Constant Flow : SFM
Hydraulic Non Return Valve : SFM
Constant Flow Solenoid Shut Off : MFM

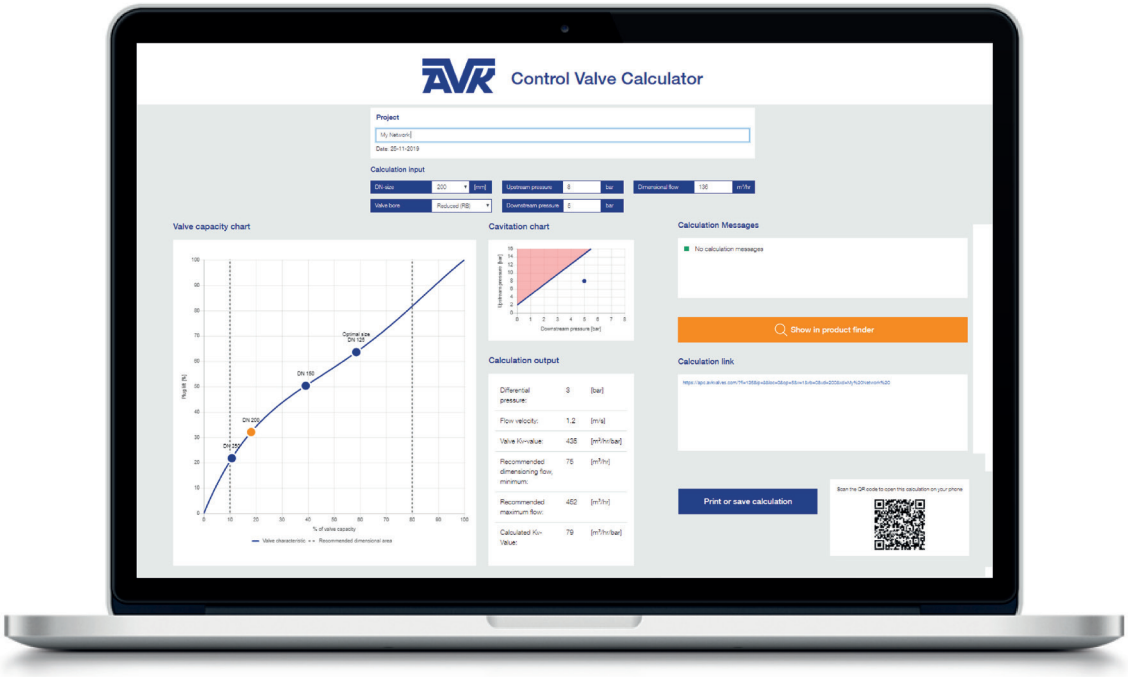
Pressure management
Dynamic Pressure Management.
Dual Stage Pressure Management.
Dual Stage Pressure Management (electric).
Pressure Management Control Valve (with orifice plate).
Pressure Management Control Valve (motorized).

Pump control
Booster Pump Control : SFM
Deep Well Pump Control.

SFM = Single Function Modules.
MFM = Multiple Function Modules.

CHOOSING THE CORRECT AUTOMATIC CONTROL VALVE

Water is a threatened resource. We have a responsibility to protect and secure water for the next generation and a growing population.



AVK control valves (869) help towards reducing water loss and, by maintaining a certain pressure, flow or level, contribute to efficient water supply management regardless of changes in the supply network.

Selection and recommendation

Our control valve calculator allows you to input your network infomation and obtain accurate data about the valve you require.

You can save and print your results and select the right product to meet your network needs.

In order to select the correct product for your application, the following information is required:

- Working conditions.
- Maximum flow.
- Minimum flow.
- Continuous flow.
- Maximum inlet pressure.
- Minimum inlet pressure.
- Wanted outlet pressure.
- Pipe size.

Try the calculator by scanning here.

SOLUTION NETWORK ISSUES
WATER HAMMER

How can AVK Non-Return valves help?
The amount of leakage and the increased risk of pipe bursts are amplified when high transient pressures occur in the system. For pumped installations, where the fluid requires to be 'lifted' from a lower level to a higher level, non-return valves are used to protect the pump and the system by reducing the risk of high transient (or surge) pressures.

When a pressure surge occurs, although it may only last for a very short time, it can amplify the normal system pressures by up to 10 times or more. This can damage the pipes, fittings and associated equipment installed on the line. Apart from the resulting costs and downtime these failures cause, the health and safety risks are also considerable.

Safety Critical Valves

The check valve allows the flow in only one (and always the same) direction thus
preventing back flow when the fluid in the line reverses direction. The main importance of this function is twofold:

1. To prevent damage to upstream equipment that can be affected by reverse flows such as pumps and measuring equipment.
2. To prevent reverse flow after system shut-down (water hammer, see page 6).

Check valves are therefore safety critical valves that protect the system and its equipment from damage which can range from accelerated wear and tear to full, catastrophic system failure depending on the extent of the system design.

The importance of selecting the correct type, size and specification of check valve is crucial to ensure the running of the system is smooth, trouble free and provides long-term operation.

Selecting the correct Check Valve

Check valves are generally one of the least understood valve types and their importance is regularly overlooked. If these valves are incorrectly specified it can lead to major operational problems.

It is important to note that other factors are required to ensure a safe and trouble free system. The correct number, types and sizes of air valves, closing and opening times of isolation valves, flow control valves etc all require to be considered to protect the system from pressure surges.

To prevent the occurrence of check valve slam, the valve should close either very quickly to prevent the onset of reverse flow or very slowly once reverse flow has developed. For a check valve to close slowly, this requires additional ancillary equipment such as hydraulic dampers which act to cushion the valve door as it comes into its seated position, however, this slower closure does allow the fluid to pass through the check valve until it closes and consideration must be given to the upstream pump to ensure that it is suitable for reverse spin and flow.

NON RETURN VALVES
THE RANGE

SERIES 41/60
AVK Resilient Seat Swing Check Valve.
For use in water/waste-water
DN50-300
PN16
Ductile Iron BS EN 1074-3
BS EN 1092-2 (ISO 7005-2)
EN 558-1 Series 48
Easy access to maintenance simply by unscrewing a few bolts and lifting the bonnet assembly.

SERIES 41/36
AVK Swing Check Valve with Lever and Weight.
For use in water/waste-water
DN350-600
PN16
Ductile Iron
EN 558 Series 48
BS EN 1074-3
BS EN 1092-2 (ISO 7005-2)
Easy access to maintenance simply by unscrewing a few bolts and lifting the bonnet assembly.

SERIES 41/39
AVK Metal Seat Swing Check Valve.
For use in water/waste-water
DN50-300
PN10/16
Ductile Iron
EN 558 Series 10
BS EN 1074-3
BS EN 1092-2 (ISO 7005-2) Easy access to maintenance simply by unscrewing a few bolts and lifting the bonnet assembly.

SERIES 53/35
AVK Threaded Ball Check Valve.
For use in wastewater
DN32-50 PN10
Ductile Iron
EN 12050-4
DIN 3202-F6
The ball rotates during opera eliminating the risk of impurities getting stuck.

SERIES 53/35
AVK Flanged Ball Check Valve. For use in waste-water
DN65-500 PN10
Ductile Iron EN 12050-4
BS EN 1092 (ISO 7005-2)
DIN 3202-F6
The full and smooth bore ensures full flow with low pressure loss and eliminates the risk of deposits at the bottom.

SERIES 6135
AVK Recoil Check Valve.
For use in water/waste-water
DN600-1200
PN16/25
Ductile Iron
BS EN 1092-2 (ISO 7005-2)
Fast acting, non-slam check valve used to prevent flow reversal.

SERIES 641/01
AVK Metal Seat Swing Check Valve.
For use in water/waste-water
DN700-1000
PN16
Ductile Iron BS EN 1074-3
BS EN 1092-2 (ISO 7005-2)
The ball rotates during operation eliminating the risk of impurities getting stuck.

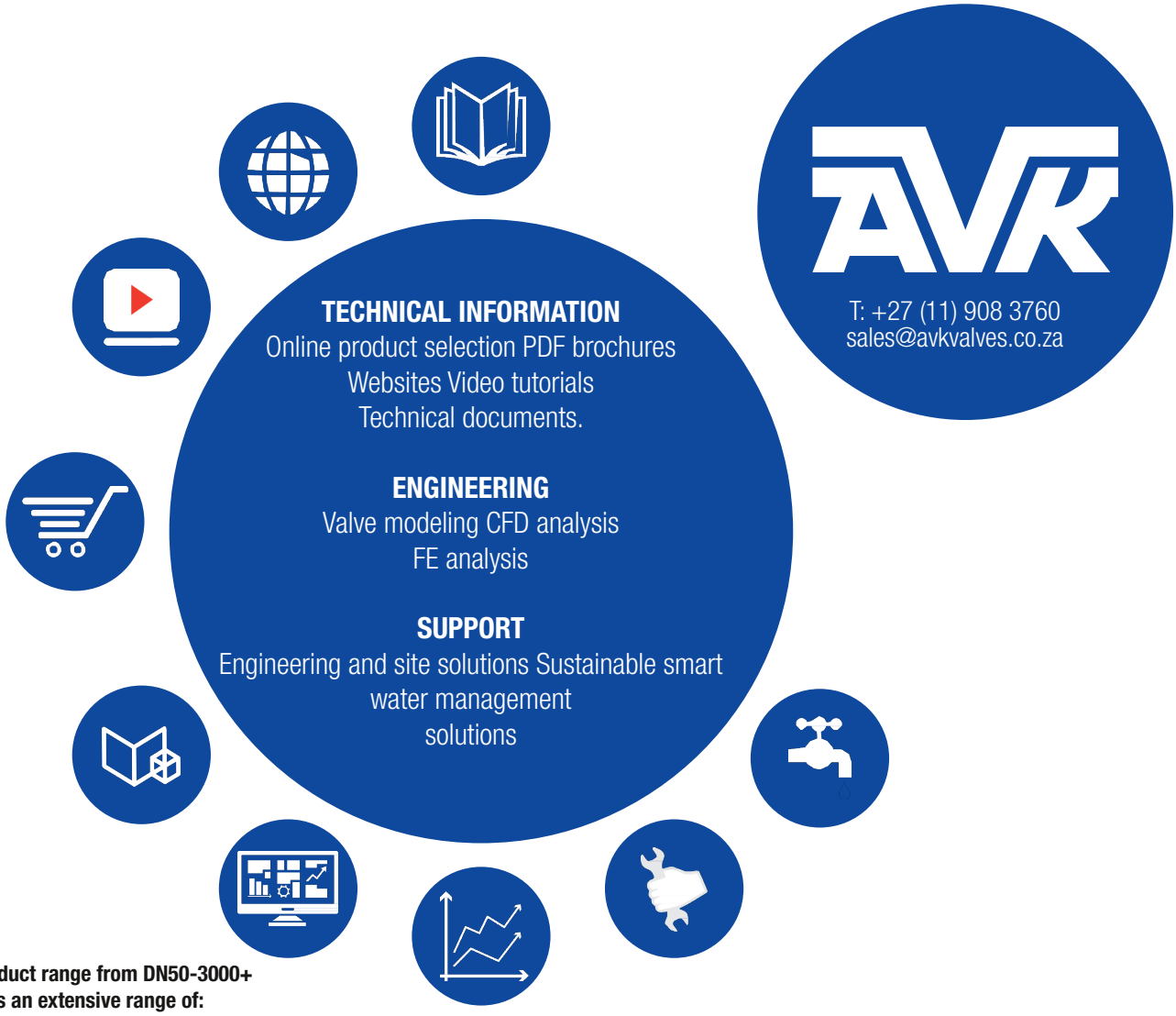
SERIES 641/11
AVK Recoil Check Valve.
For use in water/waste-water
DN100-500
PN16
Ductile Iron
BS EN 1092-2 (ISO 7005-2)
Delivered with NBR lined ball as standard and optionally with ball of polyurethane available in different weights.

GUNRIC TILTING DISC 6146
Slanted Seat Check Valve
DN200 – 1000
PN10/16
Ductile Iron Body SS Seat
EN558 – Series 14
Metal Seated, Fabricated Body & Disc in S355 Material, Seal = Laminated Stainless Steel or Solid Metal Seal. (The 6143 is the IPV Brand Check Valve

SERIES 876
Nozzle Check Valve DN50 – 600 PN10/16
Ductile Iron Body Bronze Seat EN558 – Series 14

WATER AND WASTE WATER ENGINEERED SOLUTIONS

Within our vast range of capabilities, we can provide a comprehensive range of engineering and site solution packages. Our specialist teams come to you to identify the perfect solution - from feasibility and site audit to network leakage management and repair.



Our product range from DN50-3000+ includes an extensive range of:

- Wedge gate valves
- Parallel faced gate valves for dams and reservoir applications
- Butterfly valves
- High performance recoil check valves
- Needle control valves
- Free discharge, cone valves
- Submerged discharge valves
- Plug valves
- Air control valves
- Automatic pressure and level control valves
- Penstocks, sluice and roller gates

Engineered and Site Solutions:

- Supply, refurbishment and replacement.
- Post contract training.
- South African coverage.

FIVE AREAS OF DISCIPLINE

The AVK Group is global in scale when it comes to manufacturing and design. We serve our customers locally, offering full-line partnership and a single entry point to a world of products and solutions. Because of our solid know-how and eight decades of experience, it is safe to expect more from us - now and in the years to come.

We make a difference only by assuring progress for our customers, and our business is centered around five areas of discipline:

QUALITY

Quality guarantees customers that the solutions work, last and live up to or exceed standards and requirements from the markets and prevent unforeseen additional costs. We continuously improve our skills and knowledge, and work and cooperate professionally and focused.

INNOVATION

Change is the keyword for business today.Therefore, it is crucial that customers choose an innovative supplier who ensures easy adaptation to future market demands.

RELIABILITY

Reliability is becoming increasingly important in an uncertain business world. With one reliable supplier the customers can measure performance and make changes to constantly improve their business.

SUSTAINABILITY

Sustainable development is essential for society and business to thrive and grow. Pursuing a sustainability strategy can lead to sustainable business, new business opportunities and significant cost savings for our customers.

CUSTOMER SERVICE

Customer satisfaction does not only derive from our products, but from the service we offer to our customers as well. Customer service reflects the professional way a company handles the needs, queries and requests of its customers.

AVK Southern Africa
10 Chris Street
C/O Chris and Garfield Street
Alrode, Alberton 1451
South Africa

Tel: +27(11) 908 3760
Email: sales@avkvalves.co.za

Rev: June 2023