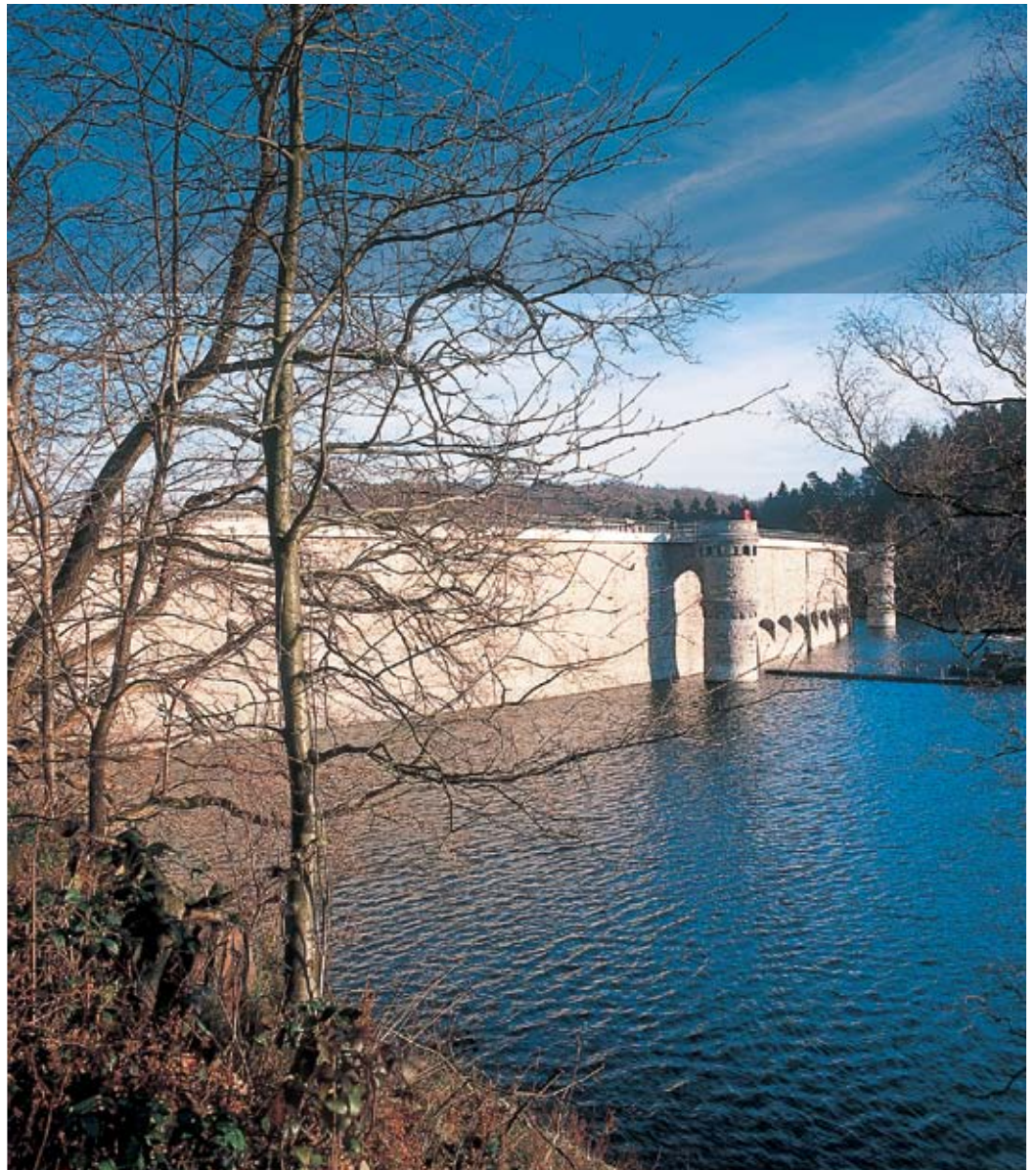


VAG Valves and Gates in Dams and Hydropower Stations





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The Egyptians were building dams as early as 2,500 B.C. Later, during the Roman Empire, engineers further developed this art of building and erected monumental retaining walls. Depending on the landscape, they built gravity dams, arch dams and buttress dams. Today's construction plans for modern dams are still frequently based on the experience and expertise gained during this period.

There are some 45,000 dams around the world. Their main purpose is to provide drinking water, protect people from floods, provide water for industry and agriculture and generate power.

As a pioneer in valve technology, VAG plays a leading role in the development of modern and robust valves.

We offer products and solutions for almost all fields of application. With our comprehensive portfolio – especially for dams and hydropower applications – we offer tailor-made solutions second to none.

They range from the inlet and safety valve to the air valve up to the control valve and overflow device. Also available as special solution or customised product – perfectly adapted to your requirements and your project.



To prevent dams bursting or uncontrollably overflowing, almost all of today's dams are equipped with bottom outlets that are designed according to the dam's expansion capacity, which is determined by the reservoir's volume and its inflow and outflow. The bottom outlet is opened, closed and controlled by valves, frequently produced by VAG.

The material and technology at the bottom of the retaining walls are subjected to enormous pressures. When water is discharged to generate power or when the reservoir is at risk of overflowing, the valves have to work quickly and reliably under incredible stress.

Benefit from our services such as maintenance, repair, planning and design. The design suitable for the pressure and flow rate of a specific plant, for instance, is developed by our engineers and precisely adapted to the application.

Thanks to this, you will receive a unique, customised valve designed and manufactured to your individual needs. Guaranteed! Because with our experience from over 500 years of company history, we stand for the quality and longevity of our products for the entire water industry.



VAG RIKO® Plunger Valve

It precisely controls the pressure and volumetric flow in pipeline networks and ensures constant water supply – at any time and in perfect coordination of quantity and pressure. The sealing system used for the plunger, the shaft bearing and the seat guarantees corrosion resistance and high performance.

Types:

- Outlet types adapted to virtually any operating condition: Standard seat ring, multiple-orifice cylinders, slotted cylinders or various customised cylinders



VAG KSSplus Hollow Jet Discharge Valve

It is a highly effective hydraulic discharge control valve for bottom outlet pipelines and discharge pipelines of large storage volumes and ensures the safe discharge of large water volumes at high pressure. At the same time it prevents damage by cavitation and dangerous vibration.

Types:

- With guiding hood to bundle the water jet
- With integrated venting equipment to prevent cavitation



VAG Spring Loaded Air Valve

In the event of a shut-down, quick draining or a pipe burst, it vents even maximum amounts of water fast and reliably. Its combination with the VAG DUOJET® makes it a superior air valve even during normal operation of the plant.

Types:

- Standard model as described
- Larger nominal diameters available upon request

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VAG HYsec hydraulic brake and lift unit

In combination with a VAG EKN® Butterfly Valve or a VAG RIKO® Plunger Valve, it serves as a quick-closing valve in the turbine inlet and in pumping stations, as a pipe-burst safety device with hydromechanical release or as a quick-opening valve in the turbine bypass.

Types:

- E – with internal oil supply
- F – with external oil supply
- PRO – made to the customer's specifications with individual features



VAG DUOJET® Automatic Air Valve

Its compact two-chamber design with three functions: aerating, venting and venting under operation. Corrosion-resistant materials and a premium quality powder coating ensure functional reliability in plants and pits over many years.

Types:

- With integrated shut-off valve for inspection purposes
- For special applications also available as welded model with body made entirely of stainless steel



VAG EKN® Butterfly Valve

Reliability, quality and durability have made it an integral part of long-distance pipelines and water supply plants as well as in industrial and municipal water supply networks.

Types:

- For operating temperatures of up to 200 °C
- With rubber lining for maximum corrosion protection
- As safety valve with UVV interlock (accident prevention regulations)

VAG RIKO® Plunger Valve,
VAG KSSplus Hollow Jet Discharge Valve,
VAG Spring Loaded Air Valve,
VAG DUOJET® Automatic Air Valve,
VAG HYsec hydraulic brake and lift unit,
VAG EKN® Butterfly Valve



Reference projects

Rur Dam, Germany
 Three VAG EKN® Butterfly Valves with hydraulic brake and lift units, two VAG KSS Hollow Jet Discharge Valves with guiding hood, one VAG Spring Loaded Air Valve and two VAG DUOJET® Air Valve



Brändbach Dam, Germany
 One VAG DUOJET® Air Valve, four VAG EKN® Butterfly Valves with hydraulic and electric actuators and one VAG KSS Hollow Jet Discharge Valve with guiding hood and electric actuator



El Yeso Dam, Santiago de Chile
 35 VAG EKN® Butterfly Valves
 2 VAG KSS Hollow-Jet Discharge Valves
 7 VAG EKO®plus Gate Valves
 4 VAG DUOJET® Automatic Air Valves
 1 VAG RIKO® Plunger Valve
 12 VAG Dismantling Joints



Rancheria, La Guajira, Colombia
 13 VAG EKN® Butterfly Valves
 VAG RIKO® Plunger Valve
 1 VAG KSS Hollow Jet Discharge Valve
 1 VAG brake and lift unit, dismantling joints



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For detailed information about nominal diameters, nominal pressures and types, the technical documentation KAT-A is relevant. • Pictures are non-binding