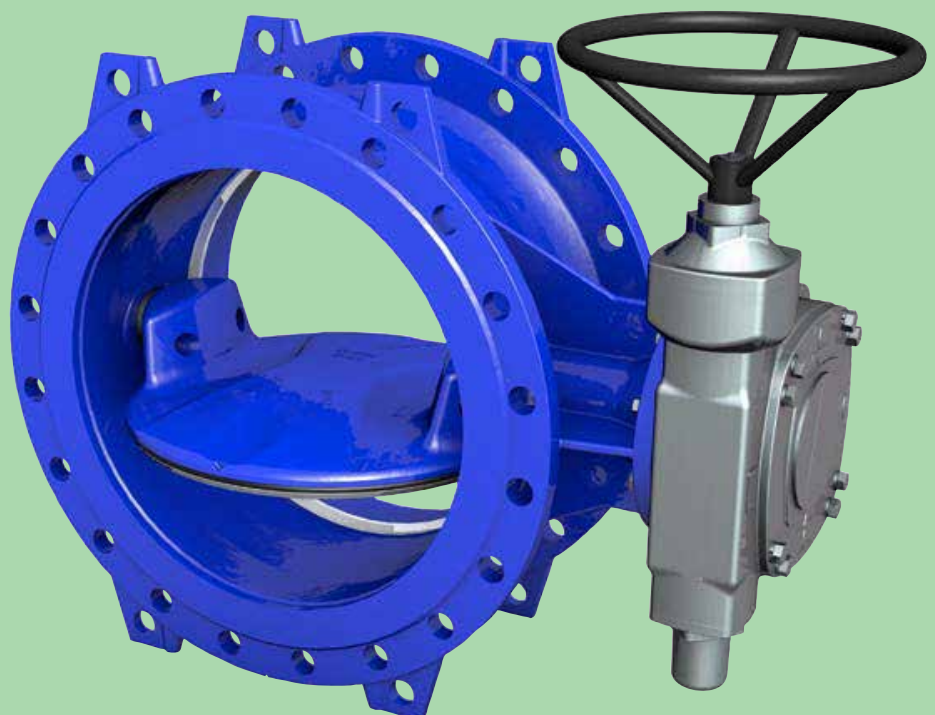


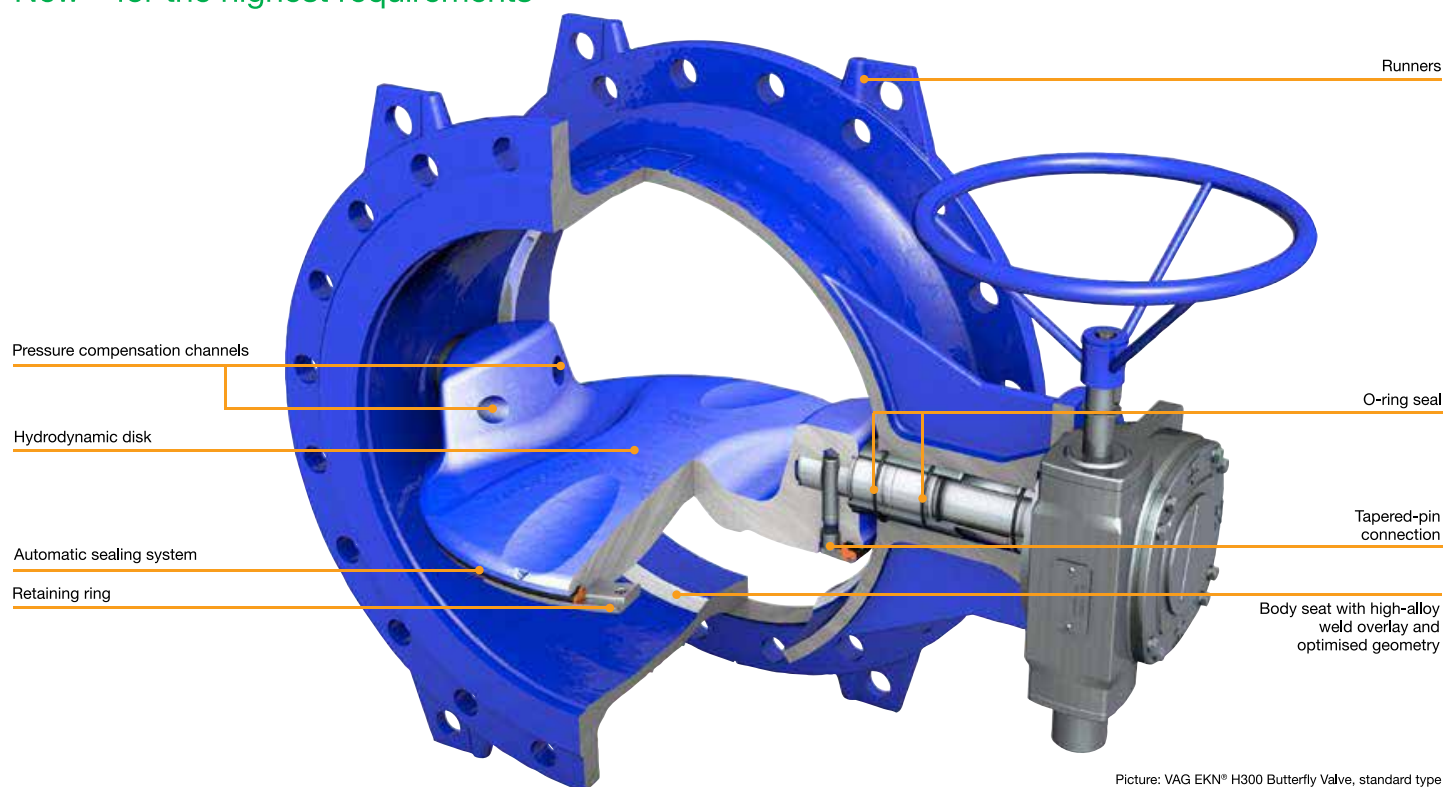
VAG EKN[®] Butterfly Valves Platform





VAG EKN® Butterfly Valve – H-Series

New – for the highest requirements



Picture: VAG EKN® H300 Butterfly Valve, standard type

Technical details

- Nominal pressures PN 10 / 16 / 25
- Nominal diameters DN 100...4000
- Fields of application: Water treatment, water distribution, power plants, dams / hydropower
- Standard version with AUMA worm gear, body and disk made of ductile iron EN-GJS-400-15 (GGG-40)
- Actuator types:
 - With manual actuator
 - With electric actuator
 - With hydraulic actuator
 - With pneumatic actuator
 - With VAG HYsec Hydraulic Brake and Lift Unit available as a safety valve
- Epoxy coating according to GSK quality guidelines
- Model varieties:
 - VAG EKN® H300 Butterfly Valve, standard and AWWA
 - VAG EKN® H400 Butterfly Valve, sea water
 - VAG EKN® H600 Butterfly Valve, for power plants
 - VAG EKN® H1100 Butterfly Valve, for dams/hydropower
 - VAG EKN® H1200 Butterfly Valve, turbine inlet

Product features

- Designed to meet the most stringent requirements.
- The innovative design with patented hydrodynamic disk, enlarged inner diameter and patented pressure compensation channels minimises pressure loss and turbulences in the outlet area. This reduces energy costs and the distance to downstream installations.
- The bearing bushes with self-lubricating properties ensure a long and reliable service life and low torques.
- The stainless-steel shafts are completely enclosed by double O-ring seals and closed bearing lugs – for the effective corrosion protection of the bearing.
- The wear-resistant, corrosion-proof and infiltration-proof seat with its optimised geometry and high-precision finish ensures the durability of the entire sealing system.
- The patented tapered-pin connection ensures the permanently backlash-free connection of the shaft and disk and reliable torque transmission. The complete enclosure of the tapered pins in the disk prevents corrosion.
- Automatic sealing system in the seat. The operating pressure supports the sealing effect – irrespective of the flow direction.
- Due to its moulded sealing profile, the profiled sealing ring is chambered between the disk and the retaining ring and so there is no risk of the profiled sealing being pulled out even at high gap velocities.
- Runners in the flange ensure optimum casting quality.
- The advantages of the double-eccentric bearing are:
 - Optimum movement of the profiled sealing ring into the seat,
 - Considerable reduction of the shear stress acting on the profiled sealing ring ensuring minimal wear of the profiled sealing ring and a high sealing force at low operating torques,
 - Relief of the load on the profiled sealing ring when the valve is in the open position,
 - The profiled sealing ring can be replaced with the valve in the open position.

VAG EKN® H400 Butterfly Valve



Sea water

- Shaft made of durable and highly corrosion-resistant duplex stainless steel grade 1.4462.
- All surfaces coming into contact with the medium are coated with abrasion-resistant rubber, thus ensuring optimum corrosion protection.
- Rubber-coated and precision-finished seat.
- Premium-quality epoxy coating on the outside.
- Special materials and coatings such as Halar® available.

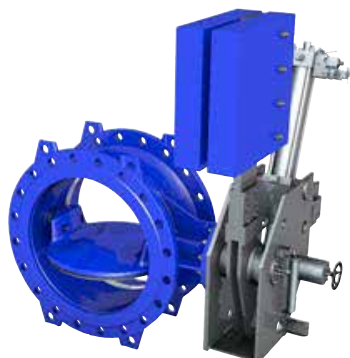
VAG EKN® H600 Butterfly Valve



Safety

- Optimised for power-plant applications.
- Extremely durable and corrosion-resistant design..
- The innovative disk with optimised rigidity ensures maximum safety.
- Safety interlock according to the accident prevention regulations (UVV) and FEA analysis available upon request.
- Special tests and acceptance inspections possible.
- Internal parts made of different materials and earthquake detector available.

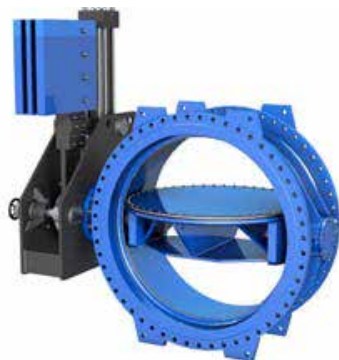
VAG EKN® H1100 Butterfly Valve



Turbine inlet

- Optimised for use in dams / hydropower.
- Special version for use as a turbine inlet or shut-off valve.
- Flow optimised – for less energy loss.
- Extremely durable and corrosion-proof design.
- CFD analyses available upon request.
- Internal parts made of different materials available.

VAG EKN® H1200 Butterfly Valve



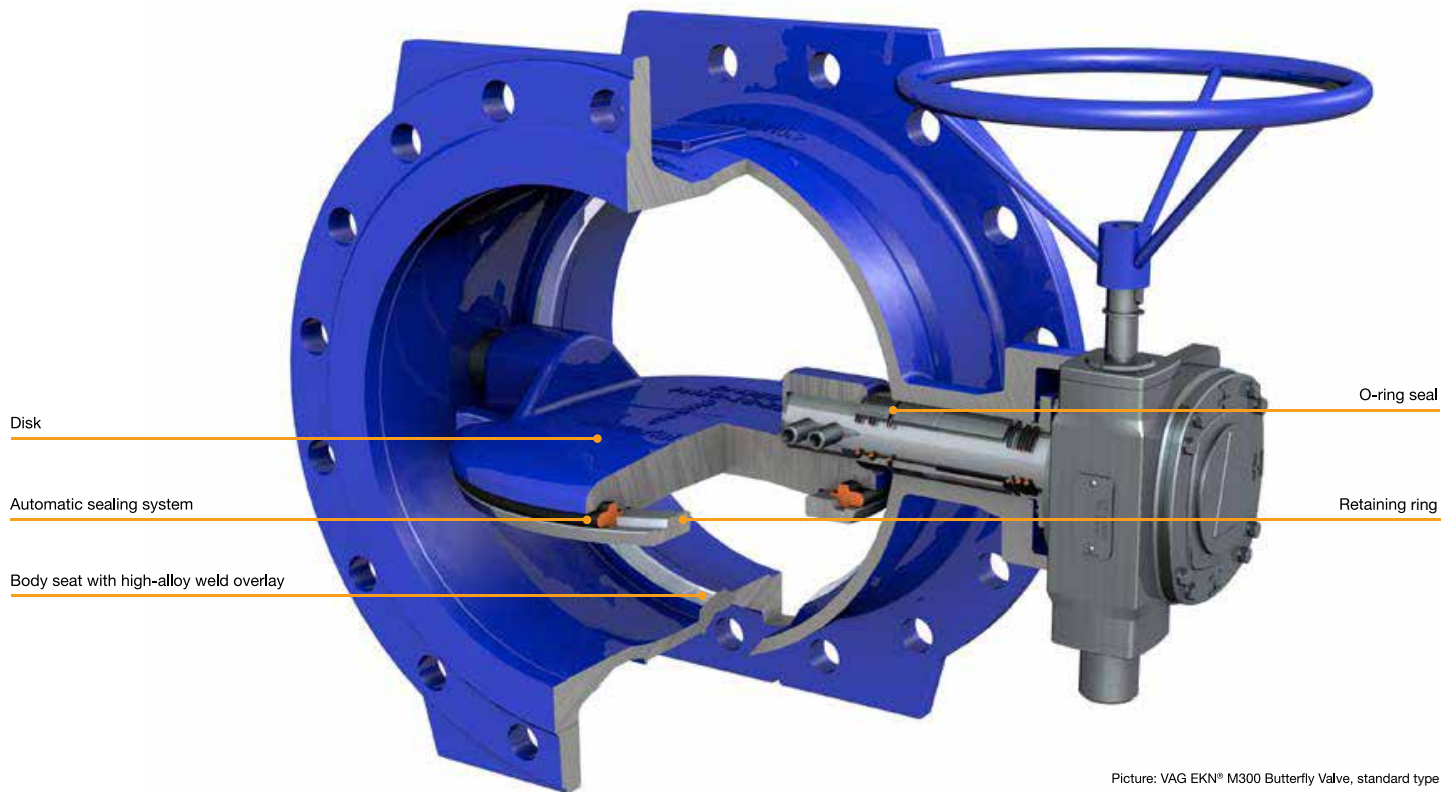
Turbine inlet

- Optimised for use in dams/hydropower.
- Special version for use as a turbine inlet valve suitable for high flow velocities of up to 20 m/s.
- Welded-steel design and flow-optimised disk.
- Application-specific eccentricity of the disk – to adjust torques to the hydraulic conditions and ensure the reliable closing of the valve.
- CFD analyses upon request.



VAG EKN® Butterfly Valve – M-Series

Proven quality



Picture: VAG EKN® M300 Butterfly Valve, standard type

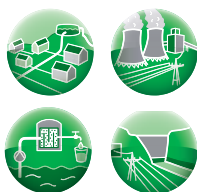
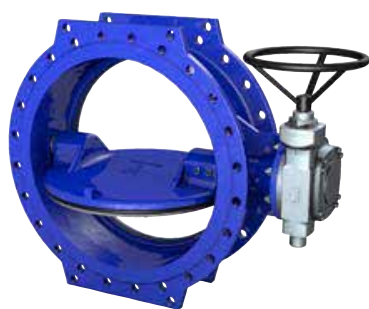
Technical details

- Nominal pressures PN 6 / 10 / 16 / 25 / 40
- Nominal diameters DN 100...4000
- Fields of application: Water treatment, water distribution, power plants, dams / hydropower
- Standard version with worm gear; body and disk made of ductile iron EN-GJS-400-15 (GGG-40)
- Actuator types:
 - With manual actuator
 - With electric actuator
 - With hydraulic actuator
 - With pneumatic actuator
 - With VAG HYsec Hydraulic Brake and Lift Unit available as a safety valve
- Epoxy coating according to GSK quality guidelines
- Model varieties:
 - VAG EKN® M300 Butterfly Valve, standard and short face-to-face length
 - VAG EKN® M600 Butterfly Valve, welded steel
 - VAG EKN® M700 Butterfly Valve, for air-cooled condensers
 - VAG EKN® M800 Butterfly Valve, for operating temperatures of up to 200 °C
 - Other versions available upon request

Product features

- Proven design for diverse requirements.
- The stainless-steel shafts are completely enclosed by double O-ring seals and closed bearing lugs – for effective corrosion protection of the bearing.
- Wear- and corrosion-resistant, infiltration-proof seat.
- Automatic sealing system in the seat. The operating pressure supports the sealing effect – irrespective of the flow direction.
- Due to its moulded sealing profile, the profiled sealing ring is chambered between the disk and the retaining ring, so there is no risk of the profiled sealing ring being pulled out even at high gap velocities.
- The advantages of the double-eccentric bearing are:
 - Optimum movement of the sealing ring into the seat,
 - Considerable reduction of the shear stress acting on the profiled sealing ring ensuring minimal wear of the profiled sealing ring and a high sealing force at low operating torques,
 - Relief of the load on the profiled sealing ring when the valve is in the open position,
 - The profiled sealing ring can be replaced with the valve in the open position.

VAG EKN® M300 Butterfly Valve



Short face-to-face length

- Very compact design featuring all the advantages of a double-eccentric butterfly valve.
- Short face-to-face length according to EN 558-1, Basic Series 13 (DIN 3202, F16).
- Optimised for use in water supply systems of power plants, dams / hydropower.
- Available with all types of actuators.

VAG EKN® M600 Butterfly Valve



Welded steel design

- Optimised for (nuclear) power plant applications.
- Welded steel design ensuring high strength and safety:
 - Body made of S235JR (1.0038) or forged,
 - Disk made of S235JR (1.0038) or forged,
 - Other materials available upon request.
- Safety interlock according to the accident prevention regulations (UVV) available upon request.
- Special version with welding ends available.
- Customised dimensions and geometries available.

VAG EKN® M700 Butterfly Valve



Air-cooled condensers (ACC)

- Optimised for air-cooled condensers in power plants.
- Short face-to-face length.
- Suitable for steam velocities of up to 150 m/s and steam temperatures of up to 100 °C.
- Design adapted to non-supported installations.
- Vacuum tight.
- Body and disk are made of welded steel and equipped with welding ends.

VAG EKN® M800 Butterfly Valve



District heating

- Optimised for power plant applications.
- Special version for hot water and district heating systems.
- Special cast or steel materials suitable for operating temperatures of up to 200 °C.
- Valve seal made of a high-temperature resistant PTFE compound.
- As special version with body and disk made of stainless steel available with flange ends or welding ends.

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Notes



Reference projects

Boxberg power plant, Germany

VAG EKN® Butterfly valve with VAG HYsec hydraulic brake-and-lift unit during customer acceptance for the pressure test

Construction site of the lignite-fired Unit R with an electric power output of 675 MW:

VAG EKN® Butterfly valve DN 2000 protect the main cooling water pumps from backflow



Jänschwalde power plant, Germany

VAG EKN® Butterfly valve with doublesided UVV safety interlock, ready for installation into the pipeline system

VAG EKN® Butterfly valve with doublesided UVV safety interlock as unit isolation valve DN 2000



Leibis-Lichte dam, Germany

VAG EKN® Butterfly valve with VAG HYsec hydraulic brake-and-lift unit as pipe-burst safety device in bottom outlet

VAG EKN® Butterfly valve DN 1000 with electric actuator



Brändbach dam, Germany

VAG EKN® Butterfly valve DN 900 with hydraulic and electric actuator



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For detailed information about nominal diameters, nominal pressures and types the technical documentation KAT-A is authoritative • The pictures are non-binding