

# Industrial water applications





There is hardly an industrial production process that can manage without water, for which reason a reliable and cost-effective supply of drinking, industrial and cooling water is a decisive economic factor. The same applies of course to the environmentally-friendly disposal of industrial sewage.

In addition to water, other media must be transported safely, e. g.

- Chemicals from acidic to alkaline
- Media containing impurities
- Heavily contaminated flushing water from flue gas
- Gases such as natural gas, other combustion gases or oxygen

Through the broad knowledge of its brands TALIS can competently and flexibly react to even the most special requirements and offer highly individual solutions matched to the customer specifications. This also applies for the cooling of power stations, where large quantities of water are required. The reliability of the water circuits is of crucial importance for these applications. Numerous successful installations all over the world prove that fittings from TALIS meet these requirements..



The emphasis is on valves for high pressures and flow rates, the development and production of which requires an enormous amount of experience and skill. Additional safety for shut-off and non-return valves is provided by drop-weight drives, which guarantee a reliable function even in the event of a power failure.

Just as important is our knowledge in relation to special coatings and special materials. This ensures that our valves can also be used safely in the case of problematic substances such as chemicals, salt water, aggressive gases or abrasive media.

#### **Our products for industrial water applications**

- Resilient-seated gate valves
- Metal-seated gate valves
- Knife gate valves
- Double-eccentric and centric butterfly valves
- Needle valves
- Hydrants
- Connection systems



*The reliable and safe supply of water and other media is of immense importance for many industrial processes, ranging from the chemical industry, via metal processing to breweries.*



# The TALIS product range for industrial water applications



## Resilient-seated gate valves

As the latest generation of gate valves, the **TALIS BAKIO® gate valve** has a lot of advantages, such as an insert-type stem bearing enabling seamless bonnet coating for complete corrosion protection and sealing of the spindle bearing with o-rings which can be replaced under full working pressure if required. An integrated spindle screw end stop guarantees increased safety and the innovative protective cap with integrated sealing lips serves as secure sealing against dust and moisture. The shut-off wedge made from top-quality cast iron with complete elastomer coating guarantees a soft seal and one hundred per cent tightness. Profiles with integrated friction guides ensure easier actuation. Optimum corrosion protection is guaranteed by a fusion bonded epoxy coating to GSK. The TALIS BAKIO gate valve is available in numerous variants and connection options.



## Metal-seated gate valves

The **ERHARD wedge gate valve** as a metal-seated gate valve is suitable for numerous fields of shut-off applications: for the supply with and the distribution of water, wastewater and industrial water. It corresponds to the DIN EN 558 face-to-face dimension, series 14 and 15, and is equipped with a metallic-seated wedge and internal spindle screw. The spindle sealing is maintenance-free but can be replaced under pressure if required.



## Knife gate valves

Knife gate valves belong to the most-used valves and are suitable for being used to regulate liquid, solid and past-like media. An important advantage is the fully free passage when the valve is open. The **ERHARD ERU® K1 knife gate valve**, furthermore, has a free flush invert so that no solids can remain clinging to it there. It can be deployed as an intermediate flange or a terminal gate valve and has an external spindle screw that is not exposed to the medium. The knife gate valve is sealing on both sides thus ensuring high functional reliability in both directions. Low operating torques allow the use of smaller drives and the adjustable transverse seal can be replaced without removing the knife gate valve. The EKB fusion bonded epoxy coating to GSK requirements ensures corrosion protection thus enabling a wide range of applications in the steel, chemistry or food industry. The modular concept provides for numerous options.



## Double-eccentric butterfly valves

The **ERHARD ROCO® Premium butterfly valve** stands for highest quality in the nominal sizes DN 80 to 600. The innovative polygon shaft-hub connection [1] features a completely shut disc eye, does not need any additional connecting elements and hence no separation joints and offers 20 % more torque reserves. The connection is absolutely free of play and, together with the flow-optimised shape of the valve disc, prevents any fluttering whatsoever. The design also allows complete encapsulation of the connection between the shaft and valve disc and, therefore, there will be no contact between the shafts and the medium any longer. Sealing consistently and logically occurs at coated parts of the component, a decisive plus for protection against corrosion and durability. The

sliding crank mechanism has an optimal movement kinematics that is almost exactly corresponding to the valve's characteristic curve.

The ERHARD ROCO Premium butterfly valve is available in numerous variants with flanged connection, as dismantling type or for the BLS system. For corrosion protection it comes with a high quality EKB fusion bonded epoxy coating or can be equipped with an EPC coating (epoxy polymer ceramic) with ceramic reinforcing fillers or an ERHARD rubber lining on the inside, both highly suitable for abrasive media.

Nominal sizes DN 700 up to DN 3600 and pressure ratings from PN 10 to PN 40, are covered by the **ERHARD EAK butterfly valve**. Proven details ensure reliable quality and a high degree of cost-effectiveness. Drive shaft and bearing pin are supported in maintenance-free, self-lubricating plain bearings and hence are highly resilient. The connection between drive shaft and valve disc with its proved and robust key connection allows a force transmission without play even under the highest stresses. The main seal is provided by a profile ring that is clamped onto the valve disc and fixed with a clamping ring.



### Centric butterfly valves

The perfected **BELGICAST butterfly valve** is of centric design and with compact face-to-face dimension being used in cases where lug and wafer type valves are needed. The sophisticated design guarantees perfect leak tightness and a long service life:

- Replaceable elastomer body seat ring, safe against mechanical and hydrodynamical strains
- Anchoring of the seat ring in the body to avoid any displacements when retracting the valve disc
- Positive and frictional disc/shaft connection for functionally safe connection without fluttering.
- Maintenance-free, self-lubricating and PTFE coated bearing bushes, triple-bearing shaft bearing assembly
- Also available with special materials like duplex steel valve discs or Halar coating for special chemical resistance even at high temperatures.



### Needle valves

Needle valves are the ideal type of valves when the aim is to safely regulate pressure heads or flow rates, for example in the inlet, the bypass or the secondary outlet of turbines. For this purpose, the cross-section of the internal valve body is constricted by an axially movable piston thus changing both the pressure and the quantity of flow and velocity. This induces high stress onto the valve which the **ERHARD RKV Premium needle valve** will be able to cope with in the long run having turned out as proven control valve since many years. Safe energy transformation without cavitation damage is enabled thanks to the ring-shaped cross-section in every position. Depending on the application, further control inserts, such as vaned rings, slotted cylinders or perforated cylinders are available apart from the standard seat ring. A range of drive options complete the system, which offers four major additional advantages:

- Optimised flow guidance for low zeta values and cost-effective operation without the formation of stagnant water
- Main seal in the hydraulically uncritical pressure zone and completely embedded in a stainless steel chamber – for optimum sealing and minimum wear



- At least four wide guide strips from a bronze-aluminium alloy for a vertically and evenly distributed weight force of the piston for reduced wear
- Precise control already from 4 % opening which results in a control range of 96 %



#### Non-return valves

A key component of the **ERHARD ERK tilting-disc check valve** is the valve disc which has a freely oscillating, flow-facilitating design with double eccentricity support. The shafts are in maintenance-free, self-lubricating friction bearings, and the shaft has maintenance-free seals. A rolled up, solid body seat ring made of stainless steel, and a disc seat ring which is additionally provided with an elastic fine seal, provide perfect sealing. The ERHARD ERK tilting-disc check valve has a weight-saving short-pattern design, and, with nominal sizes from DN 150 to DN 1000 and pressure ratings from PN 10 to PN 25, it provides a solution that can be individually adapted, even for special applications.



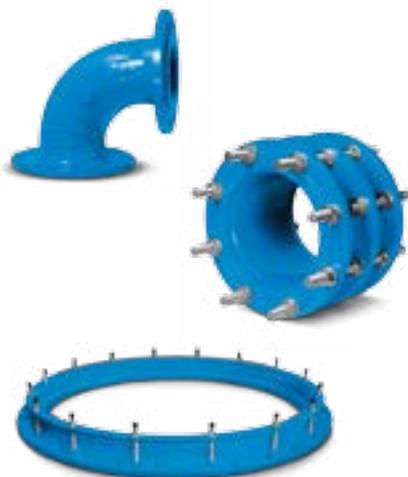
An optimised flow cross-sectional area as well as a valve disc and valve stem gasket designed for minimum flow resistance ensure minimum head losses and highly economic operation with the **ERHARD non slam nozzle check valve**. Valve disc, spring and closing travel have been engineered in such a way that the ERHARD non slam nozzle check valve reacts that quickly even in highest flow delays (e. g. in a vertical line) that only minimal return flow velocities occur, with the flow being gently slowed, thus reducing water hammers to a minimum.



#### Hydrants

The **ERHARD Industrial Hydrant 150** is the first post fire hydrant with a ball valve as the shut-off element. This results in a full bore without loss of pressure, high flow velocities with a minimum of turbulences and, resulting from that, highest volumes of throughput. The state-of-the-art hydrant engineered to DIN 14384-C also features further characteristics which have predestined it for use in high-performing drinking, industrial and fire-fighting water networks of industrial companies.

- Maximum operating safety thanks to external drive elements, low operating force thanks to ideal gear transmission
- Service-friendly predetermined breaking point as standard
- Two top outlets with B fixed couplings (kv 340 m<sup>3</sup>/h), two bottom outlets with A fixed coupling (kv 1,075 m<sup>3</sup>/h)
- Robust dual automatic draining devices



#### Connection systems

Of course the TALIS range also provides all components for an easy and secure connection of valves like:

- **FRISCHHUT fittings** according to DIN EN 545, Series A, made of EN-JS1050 ductile cast iron with epoxy coating, flanged connections or TYTON® socket
- **UNIJOINT flange adapter** with flange connection on one side and insertion socket for the pipe on the other side, offers an adjustability of ± 25 mm as well as an angular deflection of 3°; absorbs vibrations in the pipeline, overcomes axial offset and guarantees a permanently leaktight connection
- **UNIJOINT PAS20 dismantling joint** with a length compensation up to ± 25 mm for an easy installation and removal of valves, with connection flanges to both ends, 100 % tension with sturdy, continuous threaded rods for the required safety

# References



## Valves in extra large – power station in Karlsruhe

One of ERHARD's major projects in the year 2011 was the production of a uniquely sized butterfly valve for a coal-fired power station in Karlsruhe, Germany. With a nominal size of DN 3600, it is significantly larger than all ERHARD valves ever made before. The DN 3600 butterfly valve is one of the largest projects to be undertaken in 140 years of ERHARD company history. The new coal-fired power station is to start commercial operations in 2012 with a gross electrical capacity of 912 megawatts.

## Departure into modern times – cooling system in Taishan, China

Taishan City, located 140 kilometres west of Hong Kong in the Pearl River delta, ranks among the most progressive cities in China. Almost every day the city changes its appearance and increases its size. A few years ago, Taishan became the "Country's Clean City" as the result of consequent use of modern supply technologies such as in water plants or in power generation, for example.

The power plant in Taishan, with five blocks of 600 MW each, is equipped with 26 ERHARD butterfly valves DN 2400. All butterfly valves operate in the sea water cooling system. The castings have been coated with a special ceramic compound, while the shafts are made of high-grade Duplex stainless steel. Some of the butterfly valves are fitted with hydraulic drop-weight actuators – they are used as combined isolating/non-return valves on the pressure side of the sea water pumps.



*For the coal-fired power station in Karlsruhe, Germany, ERHARD butterfly valves DN 3600 were installed.*



TALIS is always the number one choice whenever water transport or control is required. TALIS has the best solution for water and energy management, as well as for industry and municipal applications. With a varied range of products we offer comprehensive solutions for the entire water cycle. From hydrants to butterfly valves. From the knife-gate valves to the needle valves. Our experience, innovative technology, global expertise and individual consultation process form the basis for developing sustainable solutions for the efficient handling of the vital resource "water".



#### **TALIS Management Holding GmbH**

Meeboldstraße 22  
89522 Heidenheim  
Germany

Phone: +49 7321 320-0

Fax: +49 7321 320-491

E-mail: [info@talis-group.com](mailto:info@talis-group.com)

Internet: [www.talis-group.com](http://www.talis-group.com)

Note: Specifications may be changed without notification at any time.  
Copyright: No copying without express written permission of TALIS.  
TALIS and ERHARD are registered trademarks. 46229 EN (02/13)