

## Water treatment







Whether from rivers, lakes, dams or the ground water – clean drinking water is a prerequisite for human life. Drinking water is understood as water that is so clean that it is suitable for humans to consume.



Water suppliers therefore have the task of thoroughly testing and guaranteeing the water quality from the point of exploration, via treatment and transportation to supplying the water to the end customer. Making specific changes to improve the water quality is known as water treatment. Substances are either removed from (e. g. by means of cleaning or desalination) or added to the water or certain parameters are adjusted (e. g. adjustment of a certain pH value). For this, physical (such as air ventilation, atomisation or thermal action), chemical (such as oxidation, ion exchange or osmosis) as well as biological methods (such as biochemical oxidation) are used.

Being 100 % suitable for drinking water is therefore of decisive importance for the valves used in these processes. Naturally all the materials used in the TALIS valves, from the metals to the elastomers, therefore satisfy the current regulations of the DVGW (German Technical and Scientific Association for Gas and Water) and many international organisations and this even applies to the smallest components. The strictest upper limit values are adhered to, but the values are usually considerably lower. Our valves also meet all the requirements for protection against contamination, i. e. the growth of bacterial strains on elastomers.

#### **Our products for water supply and water treatment**

- Resilient-seated gate valves
- Double-eccentric and centric butterfly valves
- Non-return valves
- Connection systems



*The extraction and transportation of drinking water, our most important commodity, place special requirements on the quality of valves.*

# The TALIS product range for water treatment



## Resilient-seated gate valves

As the latest generation of gate valves, the **TALIS BAKIO® gate valve** offers 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 a 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.



## Double-eccentric butterfly valves

The **ERHARD ROCO® Premium butterfly valve** stands for highest quality in the nominal sizes DN 80 to DN 600. The innovative polygon shaft-hub connection features a completely closed 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.



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 ECLI butterfly valve** is of centric design and compact face-to-face dimension being used in cases where lug or 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 hydro-dynamical 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



### Non-return valves

The **BELGICAST dual plate check valve** is clamped between two flanges as a reflux preventer. It has two vanes which, for example, open on starting a pump and will immediately close upon switching off the pump through the pressure exerted by the head of water and the spring restoring force. The check valve can both be installed in horizontal and vertical pipelines and is suitable for temperatures from -10 °C to +60 °C.

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 with the **ERHARD non slam nozzle check valve**. This enables highly economic operation especially in pumping stations. 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.



### 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  $\pm 25$  mm as well as an angular deflection of  $3^\circ$ ; absorbs vibrations in the pipeline, overcomes axial offset and guarantees a permanently leaktight connection
- **UNIJOINT PAS20 dismantling joint** with a length compensation up to  $\pm 25$  mm for an easy installation and removal of valves, with connection flanges to both ends, 100 % tension with sturdy, continuous threaded rods





## References

### **Drinking water at its best – the Granetal reservoir in the Harz region**

The Harz waterworks with its more than 500 km long transport network supplies top-quality drinking water to more than 1.5 million people. The naturally soft water is extracted, among other places, from the Granetal reservoir in the western Harz region. Up to 180,000 m<sup>3</sup> per day of high-quality drinking water is taken from this reservoir with 46 million m<sup>3</sup> drinking water.

Since the Harz waterworks started operation in 1928, engineering planning has been focused on the durability of the plant and systems. The waterworks at the Granetal reservoir was built in 1972 and is currently equipped with ERHARD ROCO Premium butterfly valves.

### **Water for millions – Santiago de Chile**

Chile's capital Santiago was founded on February 12, 1541. The city fascinates with its mix of modern times, 500 year of history and the unique setting of the Mapocho river surrounded by the Andes mountain tops. Santiago's 5.5 million inhabitants make up one third of Chile's total population. Adequate and quick availability of drinking water is of essential importance for this metropolitan area. The waterworks La Florida, built at the end of the 1990s, need only one hour for a complete treatment process. It begins with mechanical coarse filtering and proceeds with sand separation, pre-setting, filtration, sterilisation up to fluorination.

All valves in the field of the water flow (raw water, flushing water, clean water), inlets and outlets of the waterworks and also RHARD ROCO Premium butterfly valves for flushing air were supplied by ERHARD.





*They all provide a reliable water supply: the Granetal reservoir in Germany [1], the waterworks La Florida in Santiago de Chile [2] and the water treatment plant Planta Achachicala in La Paz [3].*

#### **Water supply on a high level – La Paz**

A city with 1.3 million inhabitants and modern office towers located at an altitude of 3,650 meters – this is La Paz, the world's highest city of over a million inhabitants. The city is primarily supplied with water by the Planta Achachicala water treatment plant. At the beginning of the 1970s, the plant – due to the increasing demand – was modernised and extended from a production capacity of 400 l/s to 1,000 l/s. Planta Achachicala is fed by four water reservoirs, the storage lake Milluni and the rivers Jankho Khota, Tuni-Condoriri, and Rio Choqueyapu. Almost all water valves in the entire plant are supplied by ERHARD. This includes 20 wafer type valves, more than 70 butterfly valves with nominal sizes from DN 300 to DN 600, partly with pneumatic drive, partly with hand-wheel, as well as a number of conventional gate valves.

#### **For perfect quality – water softening in Sallmannsberg**

More than 125,000 people in the counties Donau-Ries, Dillingen and Weißenburg-Gunzenhausen are supplied by the “Bayerische Rieswasserversorgung” in Nördlingen, Germany. An optimal quality is ensured by the new water works in Sallmannsberg, which is equipped with a state-of-the-art water softening facility. By means of fast decarbonisation water hardness is reduced from 21° dH to 13 °dH, which equals a medium hardness. For this project, ERHARD supplied ROCO Premium butterfly valves and RKV Premium needle valves.





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)

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