

# Irrigation







*The constant irrigation of large agricultural areas is of immense importance for feeding the world's population.*

One of mankind's oldest technical applications are the irrigation of fields for agriculture. This allowed the first advanced civilisations to flourish along the Nile, Euphrates and Tigris and is still today a decisive factor in feeding the growing world population.

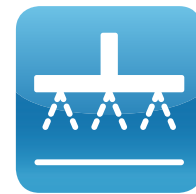
Of great importance here is that the valuable commodity water is used economically, but also that sufficient irrigation takes place for plant growth. Equally important is the transportation of the water to the irrigation site with as little loss and as a cost-effectively as possible.

The functional range of TALIS valves therefore extends from obtaining the water from surface waterways, the ground water or specially installed water storage facilities to distributing the water to the spray-irrigation systems.

Particularly for use in large-scale irrigation systems in southern regions, the valves must be robust and simple to use, but at the same time inexpensive to acquire and easy to install.

#### **Our products for irrigation**

- Resilient-seated gate valves
- Double-eccentric and centric butterfly valves
- Control valves
- Hydrants
- Connection systems



# The TALIS product range for irrigation



## 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** as a logical and consistent development of the ERHARD butterfly valves that have been tried and tested for many years stands for highest quality in the nominal sizes DN 80 to 600. Perfect solutions ensure outstanding product properties with respect to operating safety, durability and cost effectiveness. 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 thanks to the notch-free polygonal profile with the same shaft diameter. State of the art, precision production technologies enable the connection to be made absolutely free of play and, together with the flow-optimised shape of the valve disc, prevents any fluttering whatsoever. The innovative design also allows complete encapsulation of the connection between the shaft and valve disc [2] 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.



Further advantages:

- Safe sealing using a rolled up, solid seat ring made of stainless steel or in the enamelled version, it sits directly on the smooth vitreous enamel
- Fully rubberised EPDM clamping ring which simultaneously serves as a sealing element, can be easily readjusted and, if necessary, can be easily replaced at any time
- Double-eccentrically supported valve disc with optimised flow performance
- Sliding crank mechanism with 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 a fusion bonded epoxy coating or in ERHARD Pro-Enamel, either with flanged connection, as dismantling type or for the BLS system.



### Centric butterfly valves

The perfected **BELGICAST ECLI butterfly valve** is a butterfly valve of centric design and 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 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



### Control valves

The pilot-controlled **BAYARD Hydrobloc pressure reducing valve** is deployed in converting a fluctuating, higher inlet pressure into a lower, constant downstream pressure. The precise valve controlled by its own medium features a pilot valve as control unit ensuring precise, prompt and fast control in addition to the main valve. The pilot valve will open once the downstream pressure drops below the value set on the control unit. The resulting pressure relief will then result in opening the main valve. Further advantages:

- Low head loss at completely open valve for highest flow capacity, for example, in case of fire-extinguishing requirement
- Practical, wide range of downstream pressure from 1 to 20 bar
- Seat located outside of the cavitation zone for minimum wear
- High maintainability with inner parts accessible from above
- Two integrated pressure gauges with globe valve for high operating convenience



The **BAYARD Hydrobloc pressure sustaining valve** is of similar design but its task is to avoiding increased pressures in pipes. It opens on exceeding a pre-set pressure value thus protecting the line from too high pressure as pressure relief valve.



The **RAPHAEL RAY** is a diaphragm actuated **pressure reducing valve** with a double chamber in "Y" pattern design. It is suitable for pressure, flow, level and pumping control and is available in nominal sizes of DN 50 to DN 250. The simple, but robust design with only a small number of parts makes maintenance extremely easy. The unique universal rubber plug ensures a secure operation under all work conditions. For corrosion protection, the valve is coated with Rilsan (Nylon 11).



Only three parts make up the **RAPHAEL RAF pressure reducing valve**. It is diaphragm actuated and can also be used for pressure, flow, level and pumping control. The simple design does not require a metal spring, but still allows an accurate regulation and a smooth opening and closing. A Rilsan coating assures a long-lasting corrosion protection. Both valves follow the DIN, ANSI and ISO standards.





A special version of the tried and tested RAPHAEL RAF pressure reducing valve is the **RAPHAEL RAF-P** with a body made of glass fibre reinforced plastic which makes the valve significantly lighter with the same stability as a metal body. The material avoids the risk of corrosion even in the most challenging installation positions. It is available in many sizes from 1.5" to 5". A low head loss and high flow rates enable a high efficiency. It can be used for remote operation of hydraulic valves by an electric command and for irrigation, water distribution and field control.

### Hydrants

An irrigation hydrant is a hydraulic device specially designed to deliver water from the general network under pressure to the individual point of use.



Especially designed for the requirements in irrigation is the **BAYARD BIR hydrant**. To adapt the hydrant to the special needs of the application, the hydrant body can be combined with several options such as the **BAYARD CORELY outlet** which consists of a meter unit, an adjustable pressure regulator, a flow limiter and a coupling. The hydrant allows one to four simultaneous connections and provides an automatic draining device. For corrosion protection it is coated with black epoxy and green polyester.



The **FRISCHHUT irrigation hydrant** has also been specifically developed for use in agricultural irrigation. Thanks to the connection incorporating a male connector (89 mm), it can be easily connected to an irrigation machine. It is operated (opened and closed) from above using a hand wheel or a key rod, and the arrangement of the quick-action coupling adds to the ease of use. The valve and seals can be easily replaced without unscrewing the hydrant. The body is made of spheroidal graphite cast iron, the shut-off disc is resilient-seated. The upper part for isolating the hydrant is made of brass and is sealed within the body by means of a sealing ring.

### Connection systems

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



- **BELGICAST fittings** according to DIN EN 545, made of ductile cast iron with epoxy coating and flanged connections
- **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

### **Bringing water to the farmers – irrigation in Turkey**

A pressurized irrigation network which takes water from the lake behind the Atatürk Dam was installed in Turkey to irrigate 8,669 ha of land through pressurized sprinkle and drip irrigation systems. The project includes 240 km of pipes with diameters of 160 to 200 cm, three reservoirs with the total capacity of 435,615 m<sup>3</sup> and 4,068 m of main canal with a trapezoidal cross section. BELGICAST supplied butterfly valves and gate valves, BAYARD was in charge of air valves. BELGICAST experts also assisted the contractor during the commissioning and on-site-training of the end users.

### **Water for the fields – the Al-Rastan dam in Syria**

Irrigating the fields was always a great task in Syria. That is why the Al Rastan Dam (with a retaining capacity of 225 million m<sup>3</sup>), being one of the most important of the 140 water reservoirs in Syria after the Euphrat Dam, is not used to generate electricity, but exclusively for irrigation.

During refurbishment of the dam (which was built in the 1950s under Russian supervision) one of the two previous bottom outlet valves was replaced by an ERHARD RKV needle valve DN 1800. This valve in the Al Rastan Dam discharges directly into free atmosphere without additional air admission. Thanks to this feature the plant capacity by far exceeds that of comparable plants in Germany.



*Using a water volume of up to 40,000 litres per second, the hinterland of the Al-Rastan dam can be irrigated.*



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".



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