

DESALINATION SOLUTIONS

BELGICAST valves play a critical role at each phase of the RO Desalination plants to ensure the system operates smoothly and efficiently.



ABOUT US

Having a wide variety of products, **we offer comprehensive solutions for the entire water cycle**, from isolation valves like gate valves, butterfly valves, knife gate valves to network protection valves like check valves, air release valves and control valves besides pipe connection fittings. Our experience, innovative technology, overall capability, and track record as individual consultants help us **to develop sustainable solutions for the efficient management a resource as vital as water**.

BELGICAST is one of the largest suppliers of valve technology and the first choice when it comes to valves and services for the water cycle.

OUR HISTORY

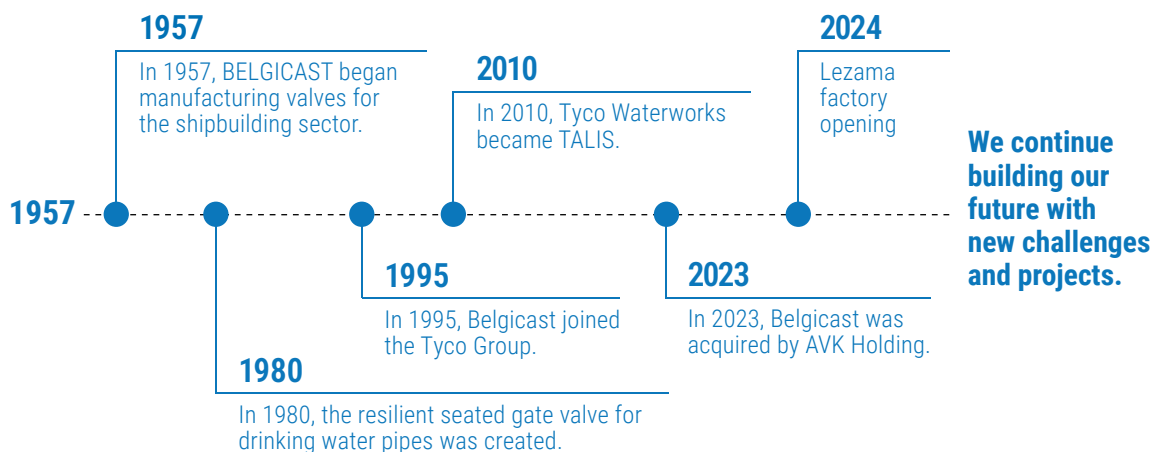
In 1957, **BELGICAST started off as a valve manufacturer for the naval industry** until the arrival of the oil crisis at the beginning of the 1980s, which led to the closure of many companies. At this point Belgicast began to diversify its product range, focusing on a market that was largely unknown at the time, namely, water. As such, the soft sealing gate valve was created for the piping of drinking water. Thanks to its innovative design, BELGICAST has achieved many successes. The brand and its products have become well-known all over the world and in 1995 the firm joined the Tyco Group. In 2010, Tyco Waterworks became TALIS.

Following years of perfection and fine tuning, the resilient seated gate valve is now an essential product for piping of quality, safe, and long-lasting water.

The full range of accessories is also noteworthy, including everything from universal flanges and couplings to tapping saddles, all available for the different types of piping.

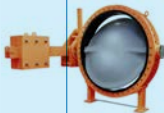









The efforts made in the development of Butterfly valves and Check valves have enabled BELGICAST to become established in once-distant markets such as desalination or district cooling markets.

In 2023, **BELGICAST was acquired together with Bayard by AVK Holding**, a Danish industrial group, market leader in Valves for the water industry.



SOLUTIONS FOR DESALINATION

The high degree of reliability of BELGICAST's products reduces the risks associated with large-scale installations and thus ensures on-time, successful, and cost-effective project execution.

Valve Types	 Centric Butterfly / Check with Counter Weight	 Penstocks	 Knife Gate Valve	 Centric Butterfly Valves	 Dual Plate Check Valves	 Nozzle Check Valve	 High Performance and Triple Offset Butterfly Valves	 Forged Ball, Needle, Lift Check Valves	 Plastic Valves	 Gate Valves
Seawater intake	•			•	•					
Dual Media Filters (DMF)				•	•					
Flocculation and Dissolved Air Flotation (DAF)		•	•							
Cartridge Filters				•	•					
Automatic strainers Micro & Ultra Filtration (MF & UF) cleaning				•	•			•	•	
Reverse Osmosis (RO) and Clean In Place (CIP)					•	•	•	•		
Chemical Area				•	•			•	•	
Remineralization (Post-Treatment)				•	•			•	•	
Brine discharge control				•						
Water Storage				•						•

PRODUCTS

BELGICAST valves are used from the Seawater intake to pre-treatment phase, regulating the flow of seawater and the pressure required for filtration. In the high-pressure stage, **BELGICAST** high-pressure check valves are essential to protect the system. After the Reverse Osmosis unit, our valves are used in the pos-treatment to purify the permeate and generate potable water, meeting the drinking water certifications. By providing precise flow control and enhancing the reliability of the system, valves contribute significantly to the overall efficiency and effectiveness of reverse osmosis desalination plants.

APPLICATIONS

BELGICAST manufactures high-quality valves that play a crucial role in the desalination process. These valves are essential for controlling the flow, ensuring optimal pressure and preventing leaks during the different stages. The durability and reliability of **BELGICAST** valves contribute to the efficiency of desalination systems, which are vital for providing clean drinking water in regions facing water scarcity. By integrating advanced materials and technology, **BELGICAST** valves support the sustainable operation of desalination plants, ultimately helping to meet the growing demand for fresh water in various parts of the world.

VALVES

GREATGOLD

CENTRIC BUTTERFLY VALVE



FEATURES

- Different disc and liner materials make it very versatile and suitable for different fluids.
- Suitable for Seawater and permeate.

TECHNICAL DATA

DN: 40 – 2400 mm

End Type: Wafer, Lug, Flanged

End Connection: EN 1092 PN10, 16, 25, ASME 150#, AWWA C-207 Class D

Design Pressure: up to 16 bar (up to 25bar with vulcanized EPDM version)

Body: Ductile iron +C5H epoxy coating

Disc: Superduplex ASTM A 995 5A(PREN>40), ASTM 351 CF8M, CF3M, Halar coated, Rilsan coated

Liner: EPDM, NBR, SILICONE

Shaft: AISI 420 (A182 F55 optional)

Service: ON/OFF and Control

Actuator: Manual, Pneumatic, Electric

DUAL PLATE

CHECK VALVES



FEATURES

- Different versions for Low and High pressure in RO.
- Internal vulcanized rubber body available

TECHNICAL DATA

DN: 50 – 1800 mm

End Type: Wafer (flanged under request)

End Connection: EN 1092 PN10, 16, 25, ASME 150#, 300#, 600#

Design Pressure: up to 100 bar

Body/Plates: Superduplex ASTM A 995 5A(PREN>40), ASTM 351 CF8M, CF3M

Liner: EPDM, NBR

Shaft: AISI 316L, A182 F55

Spring: Inconel 625, AISI316L

Service: Network protection

*Flanged under request



GATE VALVES

FEATURES

- Rubber lined wedge
- Suitable for Potable Water
- Potable Water Certified

TECHNICAL DATA

DN: 40 – 1200 mm **End Type:** Flanged EN558 F4, F5

End Connection: EN 1092 PN10, 16, 25, ASME 150#

Design Pressure: up to 25 bar

Body: Ductile iron + GSK epoxy coating

Wedge: EPDM, NBR **Shaft:** AISI 420 **Service:** ON/OFF

Actuator: Manual, Pneumatic, Electric



HIGH PERFORMANCE BUTTERFLY VALVE

FEATURES

- High performance double eccentric butterfly valve
- Uni-directional (soft seated), Bi-directional (metal seated)
- Suitable for RO units up to 50bar

TECHNICAL DATA

DN: 50 – 600 mm
End Type: Wafer, Lug, Flanged
End Connection: EN 1092 PN10, 16, 25, ASME 150#, 300#
Design Pressure: up to 50 bar
Body/Disc: Supeduplex ASTM A 995 5A(PREN>40), ASTM 351 CF8M, CF3M
Seat: RPTFE, Metal
Shaft: A182 F55, AISI316L
Service: ON/OFF and Control
Actuator: Manual, Pneumatic, Electric



TRIPLE OFFSET BUTTERFLY VALVES

FEATURES

- Bi-directional or uni-directional tight shut-off capability
- Streamlined flow path engineered for high Cv and reduced pressure loss
- Suitable for High Pressure in RO and Clean in Place (RO)

TECHNICAL DATA

DN: 80 – 800 mm
End Type: Wafer, Lug, Flanged, Butt Welded (BW)
Design Connection: ASME 600#
Design Pressure: up to 100bar
Body/Disc: ASTM 995 5A (PREN>40)
Seal Ring (lamellar): Super Duplex + PTFE, Solid
Shaft: A182 F55 (Superduplex)
Service: ON/OFF and Control
Actuator: Manual, Pneumatic, Electric



PENSTOCKS

FEATURES

- Modular design allows for both Open Frame and SelfContained configurations.
- Mounting configuration options: Wall mounted, Embedded in concrete.
- Self-cleaning HMWPE guides reduce the friction coefficient during operation
- Suitable in for Dissolved Air Floation (DAF)

TECHNICAL DATA

DN: 150x150 to 4000x4000
Design Seating Head Pressure: 6mWC and 10mWC
Frames and slides: Superduplex2507
Seal: EPDM
Guides: High Molecular Weight Polyethylene (HMWPE)
Actuation: Manual and Electric



KNIFE GATE VALVE

FEATURES

- Bidirectional
- For high concentration fluids, including Seawater sludge

TECHNICAL DATA

DN: 50 – 600 mm (others on request)
End Type: Wafer, Lug
End Connection: EN 1092 PN10, 16, 25, ASME 150
Design Pressure: up to 16 bar (depending on diameters)
Body/Disc: ASTM A182-F53, AISI316(1.4401)
Seat: EPDM, NBR
Service: ON/OFF and Control (V-port type)
Actuator: Manual, Pneumatic, Electric



NOZZLE CHECK VALVES

FEATURES

- High pressure in RO
- Non Slam

TECHNICAL DATA

DN: 600 – 700 mm

End Type: Wafer

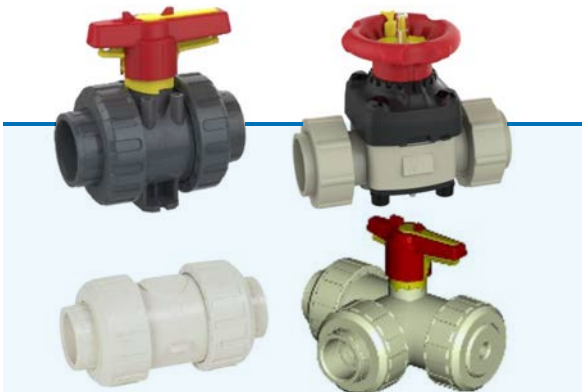
End Connection: ASME 600#

Design Pressure: up to 100 bar

Body/Plates: Supeduplex ASTM A 995 5A (PREN>40)

Seat: Soft or Metal

Service: Network protection



PLASTIC VALVES

Ball, Diaphragm, Check valves Air Valves, 3-way ball valves with orifice for sampling tube

FEATURES

- High Chemical & Thermal Resistance
- 3-Way ball valve with an integrated sampling orifice used directly on the permeate

TECHNICAL DATA

DN: 10 to 80

End Type: SW, Threaded (NPT, BSP), Flanged

Design Pressure: PN10, PN16

Material configurations: PP, PVDF, PVC-U

Seal Material: EPDM, FPM, FFPM

Seat: PTFE

Actuation: Manual, Pneumatic and Electric



FORGED BALL, NEEDLE, LIFT CHECK VALVES

FEATURES

- Designed to withstand high pressure in RO systems
- Defect-Free Consistency

TECHNICAL DATA

DN: DN15(1/2") – DN50 (2"), (others on request)

End Type: BW, Threaded(NPT, BSP), Flanged

End Connection: ANSI150#, ANSI300#, ANSI 600#

Design Pressure: up to 100bar

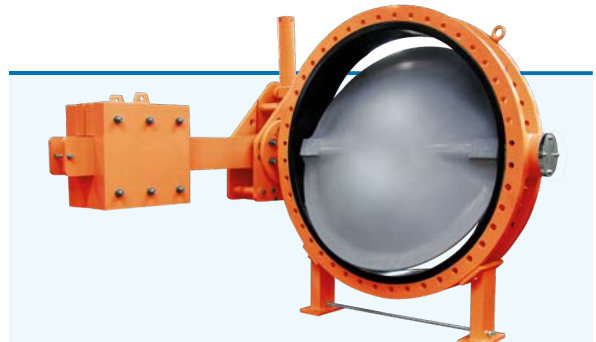
Body: ASTM 182 F55, F53, F316L

Ball: ASTM 182 F55, F53, F316L

Seat: RPTFE

Shaft: A182 F55, F53, F316L

Actuation: Manual, Pneumatic and Electric



COMBINED BUTTERFLY/CHECK VALVE WITH HYDRAULIC DEVICE AND COUNTER-WEIGHT

FEATURES

- Centric and Eccentric option
- Closing in two stages with adjustable speed
- Suitable for Large Seawater Intakes

TECHNICAL DATA

DN: 700 – 1400 mm(centric) / up to DN3400mm on Eccentric option

End Type: Flanged

End Connection: EN 1092 PN10, 16, ASME 150#, AWWA C-207 Class D

Design Pressure: up to 16 bar

Body: Ductile iron +C5H epoxy coating

Disc: Superduplex 1.4469 or ASTM A 995 5A(PREN>40)

Liner: EPDM /internal vulcanized EPDM on Eccentric option

Shaft: 1.4462, (1.4410 on Eccentric option)

Service: Network protection

Actuator: Hydraulic & Counter Weight

PROJECT REFERENCES

El Galalah SWRO

EGYPT



150.000 m³/day capacity

Located on the Red Sea in Suez Gulf, is considered the largest sea water desalination plant in Egypt by using reverse osmosis technology.

PRODUCT LIST

- Centric butterfly valves
- Dual plate check valves

2nd Changi NEWater

SINGAPORE



50 million gallons of recycled water

The plant adds another 50 million gallons of high-grade recycled water every day to Singapore's water supply. NEWater is one of the country's four sources of water. Singapore's other sources of water are desalinated water, reservoirs, and imported water from Malaysia.

PRODUCT LIST

- Resilient seated gate valves
- Centric butterfly valves
- Dual plate check valves

Umm Al Houl II Desalination Plant

QATAR



Photo courtesy of Acciona

284.000 m³/day capacity

The Umm Al Houl II desalination plant in Qatar is one of the largest and most advanced desalination facilities in the region.

PRODUCT LIST

- 1.873 valves, ranging from DN 100 (4") to DN 1800 (72"), with pressure ratings from 150# to 600#
- Pneumatic, electric, manual centric butterfly, low and high-pressure check valves

PROJECT REFERENCES

Jubail 3A Desalination Plant

KSA



600.000 m³/day capacity

Located in Jubail, KSA, this independent water plant (IWP) generates 600,000 m³ of potable water/day - greatly contributing to Saudi efforts to ensure water security.

PRODUCT LIST

- More than 700 pneumatic valves
- Motorized and manual butterfly valves

Jorf Lasfar SWRO

MOROCCO



75.800 m³/day capacity

Belgicast supplied the valves for the first Jorf Lasfar Desalination plant, which was commissioned in 2015. This plant uses ultrafiltration technology as a pretreatment for reverse osmosis. This advanced system guarantees high-quality water to supply the OCP (Office Chérifien des Phosphates) fertilizer industrial complex and for municipal use.

PRODUCT LIST

- Approx 500 butterfly valves up to DN2000
- Manual, electrical and pneumatically actuated

Safi Wave II Desalination Plant

MOROCCO



200.000 m³/day capacity

The Safi Wave II Desalination Plant is a major infrastructure project in Morocco led by OCP Group to secure sustainable water resources. Driven by the country's severe drought challenges, it supplies drinking water to the city of Safi and supports the region's agricultural and industrial demands.

PRODUCT LIST

- More than 1000 valves up to DN2200 (88")
- Pneumatic & motorized butterfly valves
- Manual butterfly valves
- Dual plate check valves
- Ball valves

REFERENCE LIST

Project Title	Country	Capacity (m ³ /day)	Year	Type
ABU QIR SWRO	EGYPT	80.000	2026*	Butterfly, Ball, LP&HP Dual Plate Check Valves
TORREVIEJA SWRO Expansion	SPAIN	120.000	2026*	Butterfly, HP&LP Dual Plate Check Valves
TAINAN SWRO	TAIWAN	100.000	2026*	Butterfly, Globe Control Valves
Wave II East Jorf South	MOROCCO	80.000	2026*	Butterfly, Ball, LP Dual Plate Check Valves
WAVE II SAFI SWRO	MOROCCO	200.000	2026*	Butterfly, Ball, LP Dual Plate Check Valves
Carboneras (refurb.) SWRO	SPAIN	120.000	2026*	Buttefly, HP Dual Plate Check Valves
Hsinchu SWRO	TAIWAN	100.000	2026*	Butterfly, HP&LP Dual Plate Check Valves
WAVE Desalination Plant	UAE	500.000	2025	Butterfly, HP&LP Dual Plate Check Valves
HASSYAN SWRO	UAE	818.000	2025	Butterfly Valves
FACILITY E SWRO	QATAR	500.000	2025	HP Nozzle Check, LP Dual Plate Check valves
DAKHLA SWRO	MOROCCO	89.101	2025	Butterfly Valves
AMAALA SWRO	KSA	143.000	2025	Butterfly, Ball, LP&HP Dual Plate Check Valves
JORF LASFAR WAVE 2 EAST SWRO	MOROCCO	70.000	2024	Butterfly, Ball, LP Dual Plate Check Valves
JORF LASFAR WAVE WEST SWRO	MOROCCO	180.000	2024	Buttefly, LP Dual Plate Check Valves
SAFI SWRO	MOROCCO	70.000	2023	Butterfly, Ball, LP Dual Plate Check, Knife Gate Valves
JUBAIL-2 (replacement) SWRO	KSA	1.000.000	2023	Butterfly Valves
SHARM EL-SHEIKH SWRO	EGYPT	30.000	2023	Butterfly, Ball, Needle, LP&HP Dual Plate Check Valves
RAS LAFFAN SWRO	QATAR	165.000	2022	Butterfly, HP&LP Dual Plate Check Valves
JAFFNA SWRO	SRI LANKA	41.000	2022	HP&LP Dual Plate Check Valves
NEMMELI SWRO	INDIA	150.000	2022	HP&LP Dual Plate Check Valves
JUBAIL 3B SWRO	KSA	400.000	2022	HP&LP Dual Plate Check Valves
SHUQAIQ-1 SWRO	KSA	600.000	2022	Butterfly, HP&LP Dual Plate Check Valves
SHOAIBAH 5	KSA	600.000	2022	Butterfly, Globe Control, Ball valves
JORF LASFAR Expansion SWRO	MOROCCO	20.000	2022	Butterfly Valves
SOREQ 2	ISRAEL	545.000	2021	LP Dual Plate Check Valves
TSEUNG KWAN O SWRO	Hong Kong (China)	135.000	2021	Butterfly Valves
AL KHOBAR 2 SWRO	KSA	600.000	2021	Butterfly, HP&LP Dual Plate Check Valves
JUBAIL 2 SWRO	KSA	400.000	2021	HP&LP Dual Plate Check Valves
JUBAIL 3A SWRO	KSA	600.000	2021	Butterfly Valves
ENSENADA Expansion SWRO	MEXICO	10.000	2021	Butterfly Valves
ARISH SWRO	EGYPT	100.000	2020	Butterfly, HP&LP Dual Plate Check Valves
ZARAT SWRO	TUNISIA	50.000	2020	Butterfly, HP&LP Dual Plate Check Valves
QINGDAO BAIFA-2 SWRO	CHINA	100.000	2020	HP Plug Valves, HP Check Valves
SHUQAIQ-3 SWRO	KSA	450.000	2020	HP&LP Dual Plate Check Valves
ShanDong lubei SWRO	CHINA	100.000	2020	HP Plug Valves, HP Check Valves
Shougang jingtang SWRO	CHINA	10.000	2018	HP Plug valves, HP Dual Plate Check Valves, HP Butterfly valves
ZHOU SHAN SWRO	CHINA	100.000	2020	HP Butterfly valves
RABIGH-3 SWRO	KSA	600.000	2020	Butterfly Valves
TAWEELAH SWRO	UAE	900.000	2020	Butterfly Valves
TALARA SWRO	PERU	86.400	2020	Butterfly, HP&LP Dual Plate Check Valves
NUWEIBA SWRO	EGYPT	15.000	2020	Butterfly, Globe Control, HP&LP Dual Plate Check Valves
NEW MANSOURA	EGYPT	40.000	2020	Butterfly, HP Ball, HP&LP Dual Plate Check Valves
AL KHOBAR SWRO (Phase 1)	KSA	210.000	2019	HP&LP Dual Plate Check Valves
UMM AL HOUL II SWRO	QATAR	284.000	2019	Butterfly, HP&LP Dual Plate Check Valves
AGADIR SWRO	MOROCCO	450.000	2019	Butterfly Valves

*Plants under construction

MATERIALS TO WITHSTAND CORROSION

One of the main issues that engineering companies face is the exposure of commonly handled longlife equipment to high salinity fluid, such as seawater and brine, reaching TDS levels higher than 50.000ppm. BELGICAST offers a multiple options for these materials, such as Superduplex A995 5A (PREN>40) discs and also coated disc with HALAR ECTFE, which offers the **best combination of low permeability and good chemical resistance** with a very smooth surface.

For High pressure valves and steel wetted parts, BELGICAST provides high quality SUPER DUPLEX with Pitting Resistance Equivalent Number ($PREN = Cr(\%) + 3,3 \times (Mo+0.5W)(\%) + 16 \times N(\%)$) > 40 and $CF > 35$.

We apply a high durability coating system for environmental conditions classified as C5-H very high corrosivity (marine) at our Painting Facilities.



OPERATING OPTIONS

Wide range of manual, electric and pneumatic actuators, including ON/OFF and regulating service. **We offer the complete package** including the required instrumentation, such as limit switch box, solenoid valves, electro-pneumatic positioners and air flow control valves.

QUALITY TO LAST

All **BELGICAST** desalination products are made to ensure long and problem free operation throughout their life. Therefore our products are designed, manufactured, and tested to meet highest quality requirements.

TECHNICAL ASSISTANCE SERVICES

Our Technical Assistance Service provides experts support throughout the entire lifecycle of your installation, ensuring maximum reliability, performance, and operational efficiency. Backed by an experienced team of specialists, we offer tailored solutions ranging from valve sizing and selection to commissioning, maintenance, repair, and technical training, helping customers optimize system performance and extend equipment service life.



Technical Support & Engineering Services

Valve sizing, calculation, selection, and ongoing technical assistance.

Maintenance & Field Services

Preventive and corrective maintenance, on-site repair, and refurbishment of valves and equipment.

Installation & Commissioning

Supervision of installation, start-up, and system optimization.

Technical Training

Specialized training for the operation, maintenance, and optimization of installations.

LOW/MID PRESSURE Check Valves



BELGICAST offers a complete range of dual plate check valves with multiple options for materials including Super Duplex for seawater, and vulcanized internal rubber as a cost-effective alternative. **BELGICAST** check valves are suitable for installation at low and mid pressure stages of the process. We offer high and low torque springs, depending

HIGH PRESSURE Dual Plate Check Valves



HIGH PRESSURE dual plate check valves are installed in most of the SWRO plants worldwide and have become the most common solution to protect the High Pressure Pump.

BELGICAST Centric Butterfly Valve



BELGICAST butterfly valves have evolved, adapting to customers' requirements through our expertise offering materials suitable for seawater, brackish and demineralized water. Our valves are suitable for ON/OFF and Regulating service. Manual, pneumatic and electric actuated.

BELGICAST IN THE WORLD

EUROPE

Lezama HQ (Spain)
Toledo Desalination Business Unit (Spain)
Milano (Italia)
Lisboa (Portugal)

MIDDLE EAST

KSA
Dubai

Lezama



BELGICAST
WATER IS LIFE

MEMBER OF



BELGICAST TOLEDO DESALINATION BUSINESS UNIT

Polígono Industrial La Cañada,
45470 Los Yébenes
Toledo, España

T. +34 925 322 502
belgicast@belgicast.es

www.belgicast.eu

BELGICAST LEZAMA HQ

Polígono Industrial La Cruz,
Parcela P-4-1, 48196 Lezama
Bizkaia, España

T. +34 944 889 100
belgicast@belgicast.es

www.belgicast.eu