



# Stainless steel ball valves GEMÜ 790 series

## Areas of application

- · Industrial water treatment
- Chemical engineering
- · Power generation and environmental engineering
- · Mechanical engineering and processing industry

#### **Features**

- · Low-maintenance spindle seal
- Suitable for high operating pressure and high temperatures
- Full and reduced flow bore possible
- TA-Luft compliant
- · ATEX version available



## High reliability at high operating pressure

Ball valves can be used in a wide variety of applications in industrial processes, and in water supply and water treatment systems in particular. The GEMÜ 790 series (GEMÜ 791, GEMÜ 797 and GEMÜ 798) is suitable for these processes, preferably for applications at a high operating pressure and high operating temperatures. In comparison with standard version ball valves (cf. diagram), the GEMÜ 790 series achieves different pressure curves, depending on version – with full or reduced flow bore. This enables a reduced through-flow with the same nominal size, shown as a positive effect in the pressure/

temperature diagram (p/T diagram). In the design with reduced flow bore, an altered pressure structure is generated in the valve and outlet distance. The turbulence that this creates results in a jet effect that is, among other things, suitable for applications with dualsubstance or multi-substance mixtures.. Diagrammatic view of the p/T diagram (example of nominal size DN 32)



## Application example: Filter systems – Use of high pressures for reverse osmosis

Reverse osmosis is one of the most efficient filtration procedures in water treatment. The unclean water is pressed through a semi-permeable diaphragm at high pressure. This filters unwanted substances out of the water.

Due to their differing electrolyte loads, a distinction is made in water treatment between sea water and industrial water. The higher the concentration of electrolytes, the higher the pressure must be in the system.

The pressure range for ball valves in industrial waste water treatment is 60 to 70 bar; for sea water it is between 60 to 80 bar.

#### **Reverse osmosis functional principle** Final stage after two pre-filtrations



Waste water Unnecessary additives such as lime are removed

## High operational safety due to low maintenance engineering

The stainless steel ball valves in the GEMÜ 790 series are characterized by their compact and robust design and are suitable for use at pressure rating PN125. The additional fully enclosed body seal enables use at high pressure, in vacuum applications and in high-temperature applications. The triply effective seal package on the ball valve shaft guarantees a particularly long service life and reliability.

#### High tightness at low actuating torque

The highly polished and precisely manufactured ball fits snugly and air-tightly into the internal seal contour. A discharge slit in the seal ensures pressure relief in the valve flow and reduces the seat wear and actuating torque required to rotate the ball. This enables cost-effective and energy-effective system operation.

#### Shaft lock and antistatic device for safe operation

Blow-out protection in the shaft ensures maximum operational safety. The antistatic device provides a permanently conductive connection between the ball and the shaft. A tongue-and-groove-style connection between the shaft and the valve body enables full earthing of the ball valve during installation in the system.

#### Standardized interface for flexible selection of actuators

The GEMÜ 790 series is designed to enable quick and easy servicing of internal wearing parts at all times. The generous valve neck extension has a top flange in accordance with EN ISO 5211. This standardized interface enables the user to fit the ball valve with various different actuators.

## GEMÜ expertise in valve designs - A wide range of possible applications









Chemical industry and environmental engineering

Power generation

Water treatment

Processing industry

The GEMÜ 790 ball valve series is suitable for the following applications (among others):

- Filter systems
- · Extinguishing systems
- · Cooling lubricant supply
- · Painting and coating systems
- · Separation technique via water jet
- Liquid/liquid extraction and solid/liquid extraction
- High pressure cleaning
- · Plastic extrusion



## Description

Ball valve in stainless steel for high operating pressures of up to 137 bar. With PTFE seal and bare shaft.

- Pneumatic: GEMÜ 791
- Manual: GEMÜ 797
- Motorized: GEMÜ 798

## **Technical specifications**

- Nominal sizes\*: DN 8 to 100
- Connections: Threaded sockets ISO 228, welded sockets DIN, spigots DIN EN 12627, others on request
- Body materials: Stainless steel 1.4408 (investment casting)
- Seal material: PTFE, others on request
- Ball material: Stainless steel 1.4401
- Operating pressure\*: 0 to 137 bar
- Media temperature: -20 to 180 °C
- \* depending on version and/or operating parameters

## Applications

- Cleaning
- · Cooling lubricant supply
- Extinguishing systems
- Filter systems
- · Painting and coating systems



