



Bottom Outlet Valves

Düker Bottom Outlet Valves – Reliable, Resis

Düker Email Technologie bottom outlet valves are known for their reliability and long service life together with ease of maintenance and cleaning. They are manufactured in line with the standards of the PED Pressure Equipment Directive and comply with Technical Instructions on Air Quality Control (TA-Luft), Safety Integrity Level II (SIL II) and ATEX.

All seals in contact with the product are designed according to the guidelines of the Food and Drug Administration (FDA). The bottom outlet valves have a GMP-compliant design in accordance with the recommendations.

Four basic types are available for various applications and areas of use:

- Glass lined version
- Glass lined, gap-free version
- Stainless steel or Hastelloy version
- FireSafe version according to EN ISO 10497

The following additional variations are an option*:

- Hand wheel
- Axially mounted pneumatic actuator
- Lateral pneumatic actuator

- With/without bellow
- Block flange – opening in the vessel
- Block flange – opening in the valve

Optional:

- Electrically conductive version
- Finished painting according to customer specification
- email800 in white colour
- email850P in light blue colour

* does not apply to FireSafe bottom outlet valve



tant, Durable...

During the design of the bottom outlet valves, special attention was placed on reducing the component diversity within the overall product range:

- This means that a number of components are identical in various valve types.
- This approach can lead to a cost reduction for stocking spare parts and in training of service personnel.
- This results in a significant reduction in maintenance expenses.

The bottom outlet valves are designed in a way that many components can be added at later time. For example, temperature control, drive and limit switch pursuant to NAMUR recommendations, can be easily upgraded.



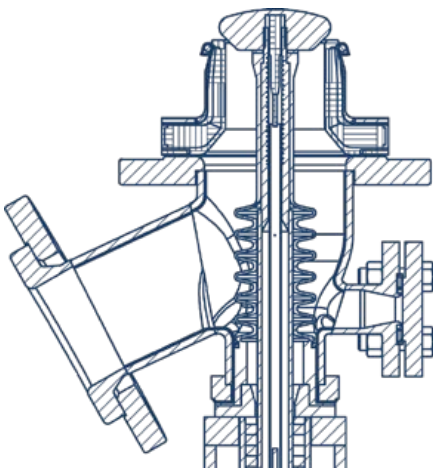
Glass Lined Gap-free Bottom Outlet Valves –

This gap-free version is especially easy to maintain and clean. In this generation the bellows has been reduced to only 6 convolutions. This results in a significantly lowered risk of adhesions or crystallisation from residue, as well offers easier cleaning.

- Sealing with valve seat and „sealing cap“ in the glass lined outlet connection (no product entry, no crystallisation or between the valve seat and vessel connector)
- PFA valve seat with stainless steel core and integrated gaskets (increased stability under high temperatures)
- New bellow TFM1600 (6 convolutions and gap-free sealing through FEP-covered O-ring)
- PT 100 easy to replace (without dismantling the valve)
- Stainless steel actuator with emergency opening (polished or matt finish)
- Stainless steel cover of head piece against dirt particles
- Flush connection DN 15 or DN 25 standard (inside conical for better emptying)
- Easy to install with lifting device
- Limit switch pursuant to NAMUR



Glass lined, gap-free design bottom outlet valve



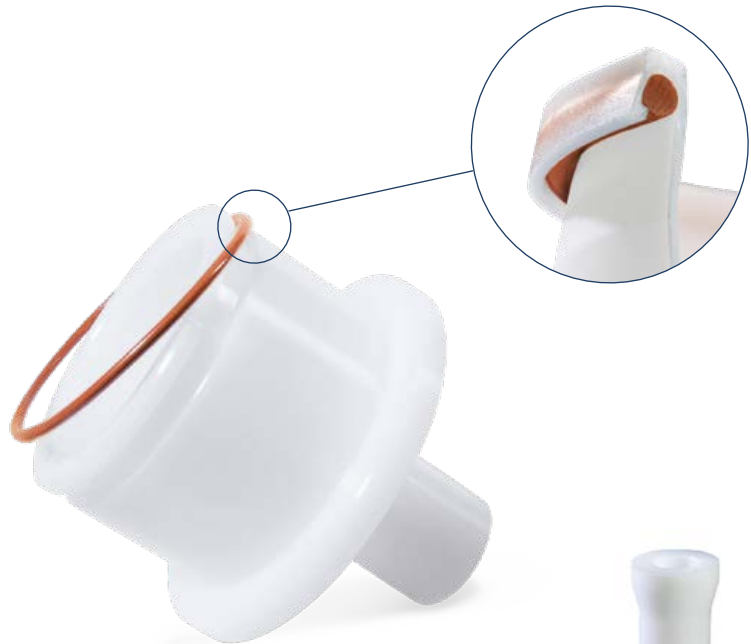
- Safer, Cleaner, more Efficient

The “sealing cap” is suitable for all Düker Email Technologie bottom outlet valves and prevents a gap between the glass lined outlet connection and valve seat. The various O-ring sizes enable large tolerances to be compensated.

Attention: The sealing cap must not protrude into the radius of the vessel nozzle.

- Sealing cap with O-rings in various diameters to fill out gap and manufacturing tolerances of the vessel nozzles
- Bellow with FEP-covered O-ring
- Sealing cap suitable for a pressure range of -1 bar to +10 bar and a temperature range of -60 °C to +200 °C.

Use the enclosed master gauge for choosing the appropriate O-ring (4 mm, 5 mm or 6 mm). This ring will be applied into the nut of the sealing cap and inserted into the vessel nozzle. By applying the valve seat together with the assembled O-ring, the sealing cap will be pressed to the nozzle wall of the vessel to ensure a gap-free seal.



Master gauge for determining the required O-ring.



Electrically conductive version of PTFE components available (in black)

Glass Lined Bottom Outlet Valves

With Block Flange

The block flange version opens either into the vessel or into the valve.

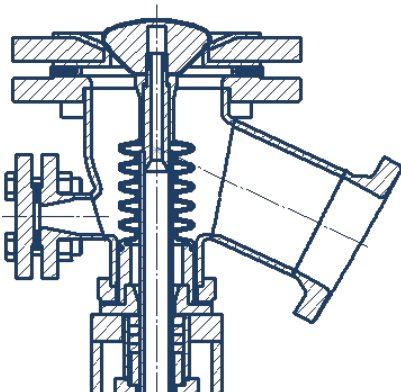
The modular design includes:

- Sealing with valve seat in the glass lined outlet flange
- Bellow (6 convolutions and gap-free sealing through FEP-covered O-ring)
- PT 100 easy to replace (without dismantling of the valve)
- Flushing nozzle DN 15 as standard (tapered on the inside to enhance drainage)
- Stainless steel actuator with emergency opening, supply with hand wheel on request
- Easy to install with lifting device
- Limit switch pursuant to NAMUR (on request)
- Electrically conductive version available

Block flange designs are available in the following nominal diameters:

- DN 50 / 32
- DN 80 / 50
- DN 100 / 80
- DN 150 / 100

Block flange version with opening into the vessel



Bottom Outlet Valves

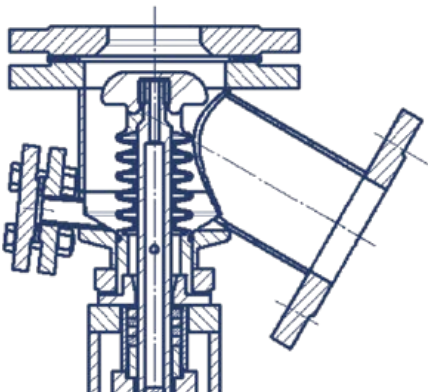
In Stainless Steel and Hastelloy

Düker Email Technologie stainless steel valves also correspond to the PED and are in line with the air quality control TA-Luft standards. All gaskets are designed to meet the FDA guidelines.

The modular design includes:

- Sealing with valve seat in TFM 1600 with an FEP covered silicone ring
- Valve seat with integrated soft gaskets
- Bellow in TFM 1600 with six easy-to-clean convolutions
Seals inside the housing with an FEP-coated silicone ring.
- PT 100 can be changed without removal of the valve
- Stainless steel actuator with emergency opening function
- Stainless steel covered head piece
- Flushing nozzle DN 15, 5°, standard with tapered plug with PTFE stopper available
- Material stainless steel 316 L or Hastelloy
- Electropolished Ba < 0.8 µm
- Easy maintenance

Block flange version with opening into the valve



Glass Lined FireSafe Bottom Outlet Valve

In Line with the Latest EN ISO 10497

The name says it all. The Düker Email Technologie "FireSafe" bottom outlet valve securely seals the vessel in the case of fire.

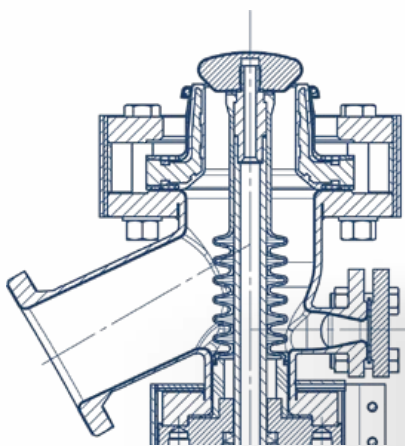
When testing to the standard, the valve is filled with water and then exposed to flame. The valve needs to be entirely surrounded by fire. The temperature at valve body ranges from 750 °C to 1,000 °C. The test is passed if the valve is able to resist the fire for 30 minutes during which seal must not be impaired. This is sufficient time for pumping the vessel dry in order to prevent serious damage.

The "FireSafe" bottom outlet valve is also a gap-free version, which is extremely low-maintenance and easy to install.

Advantages of FireSafe at a glance:

- Fire safe bottom outlet valve
- Seals the vessel in case of fire for at least 30 minutes
- Gap-free design prevents product entry behind the sealing cap inside the vessel nozzles
- Simple and fast cleaning

Firesafe bottom outlet valve



Glass Lined Standard Bottom Outlet Valves

This type is Düker Email Technologie standard bottom outlet valve specification. The range of application includes temperatures between -60 °C and +200 °C and operating pressures between -1 bar and +10 bar.

The modular design includes:

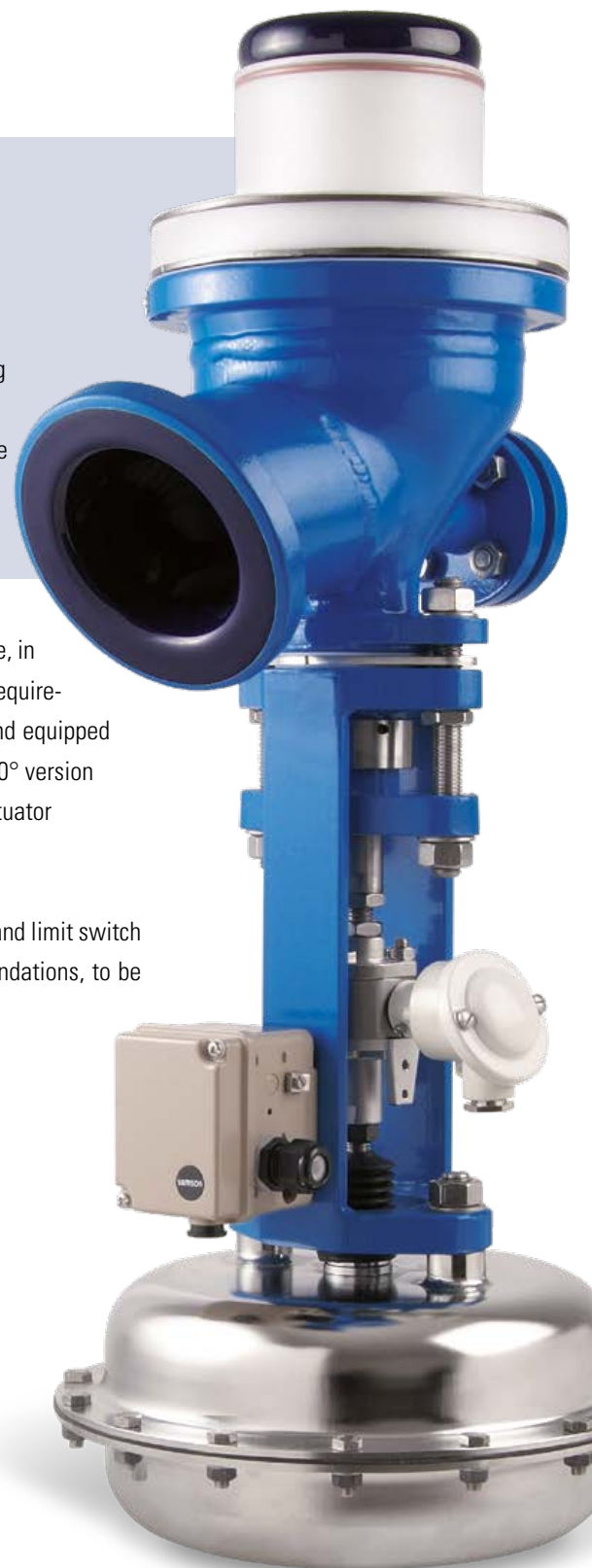
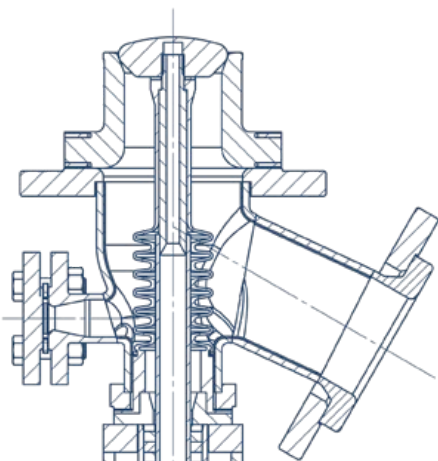
- Welded 60° steel housing
- Stainless steel pneumatic actuator
- TFM bellow with 6 convolutions
- Valve seat in modified PTFE and integrated gaskets
- Outer finish: Finish painting blue
- Flushing nozzle DN 15, also suitable for sampling
- Standard emergency opening function including screw
- Optional inserted temperature control PT100

Design according to PED 97/23/EC, category II, module A1 with CE marking and declaration of conformity. Housing with stub end and loose flange. This enables connection to ANSI vessels or other standards by changing the loose flanges.

The 45° version is still available, in particular for replacement requirements. It has been modified and equipped with components of the new 60° version (e.g. bellow, stainless steel actuator valve seat etc.).

Temperature control, actuator and limit switch pursuant to NAMUR recommendations, to be easily upgraded.

Glass lined bottom outlet valve



Accessories for Bottom Outlet Valves

Depending on the individual applications, Düker Email Technologie bottom outlet valves may be modified with various accessory parts. Some components, such as the pneumatic actuator or temperature measurement may be upgraded later if required.

Overview of the most important accessories:

1 Tantalum screw

2 Resistance thermometer PT 100

3 Temperature transmitter

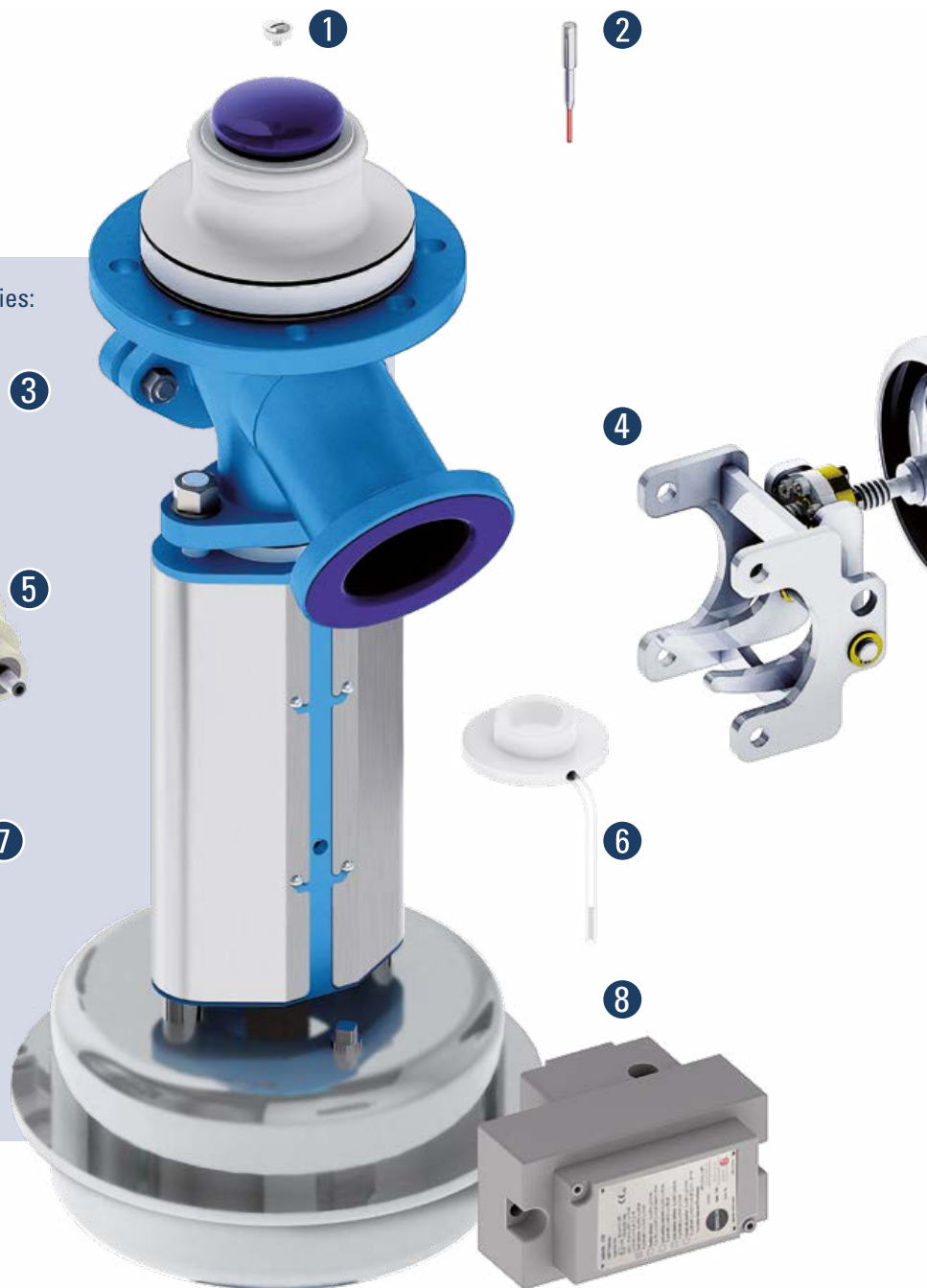
4 Emergency opening with side-mounted hand wheel

5 Terminal head BUZH

6 Leak monitoring bellow

7 Limit switch

8 Positioner



Quality on the Highest Level

The pharmaceutical and chemical industries in particular place great emphasis on extremely safe and secure handling and production processes. The same applies to maintenance and care.

Düker Email Technologie technical enamels fulfil all these requirements without compromise. We set the highest requirements for the quality of our products. That is why we introduced a modern certified quality management system according to DIN EN ISO 9001 as early as 1993. In addition, Düker Email Technologie products have undergone other tests and approval procedures in line with product or market-specific standards or regulations.

Regular and random checks, internal and external audits coupled with our employees' motivation are the drivers behind the QM system, which forms an integrated element of the entire organisation and is continuously upgraded. So the motto continues: "Düker Email Technologie products are known for their long service life and state-of-the-art technology".



Committed to Environmental Protection

For Düker Email Technologie, environmental protection is an essential obligation on the way to achieving the formulated company goals and is an indispensable aspect of the operative activity of every employee. In this sense, the protection of the environment and the responsible use of natural resources are not merely an end in themselves, but also secure the future of the company. The economical and efficient use of natural resources has a direct impact on the environment and ensures availability for future generations.

Düker Email Technologie regularly and systematically determines and evaluates its environmental impact and works towards limiting it to an environmentally-friendly level. This also applies to the selection and use of our primary materials and feedstocks, energy sources, technical equipment and work processes. The use of energy-efficient technologies has a high priority in the purchase of new equipment and in the modification of machines and systems. In the assessment and selection of the essential suppliers and service partners, Düker Email Technologie works towards ensuring that they act according to equivalent standards in their procedures and workflows.

Düker Email Technologie offers

- Functionality, safety and customer benefits for the chemical and pharmaceutical industries
- Integrated solutions from a single source
- Highly acid-resistant enameled pipeline parts, fittings and columns
- Comprehensive services
- Qualification of your employees
- Engineering, procurement, construction, assembly and maintenance for process plants

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