Safety and Bunging Valves
Tank Dome Fittings
Aseptic Sample Valve

Tanks

KIESELMANN
FLUID PROCESS GROUP

We do everything – for your safety

There are many reasons for an excessive rise of pressure in closed systems which may arise specifically or simultaneously. If process monitoring and control systems fail, safety valves provide the only effective protection for vessels and pipelines against serious damage, until the original operating conditions are restored.

KIESELMANN offers a wide range of different safety components for all mediums, whether it's a liquid or gas. The counselling of the KIESELMANN specialists, who have many years of experience, and a special software give you the assurance that the selected components are carefully designed for the specified process and reliably protect.

Of course, our safety valves are tested and approved by the TÜV (Technical Control Board in Germany) and comply with the valid standards, rules and regulations. Each safety valve is individually calibrated in our test centre and then leaded. A corresponding test certificate accompanies each delivery.

We do everything – for your safety.

Safety valve in the KIESELMANN test centre

The KIESELMANN Safety Programme

KIESELMANN Safety Fittings

- For liquids and gases
- Tested and approved by TÜV according to PED 97/23/EG
- Design, production and function conform to AD 2000 Guidelines
- Excellent blow-off performance (high flow coefficient) with low flow resistance
- Hygienic design
- CIP/SIP cleanable

Safety Valves

Protection against inadmissible overpressure

KIESELMANN safety valves operate automatically, without any auxiliary energy, as soon as system pressure exceeds the adjusted set point. They are characterized by very precise response performance along with excellent flow capacity.

The safety valves are designed with a compact and closed housing. All moving parts are kept inside. On the one side it allows a proper cleaning of the outer surfaces, on the other it avoids the risk of an external blocking. The spherical shaped cavity with the hygienic designed clamp connection ensures excellent CIP/SIP performance at any time.

Safety valve for liquids and gases
(spring return and weight-loaded)

Basic configurations

- Spring return
- Weight loaded

Optional features

- Position sensor
- Manual easing gear
- Pneumatic easing gear

Safety valves for gases (spring return)

TECHNICAL DATA	
Nominal widths:	DN 25–100 (liquids and gases) DN 20 (gases)
Materials:	1.4301/AISI 304 1.4404/AISI 316L for all product wetted parts
Seal materials:	EPDM, HNBR, Viton, FKM
Set pressure:	0.2–12 bar depends on nominal width (liquids) 0.1–10 bar (gases)
Operating temperature:	max. 90° C (liquids) CIP/SIP capable up to 140° C max. 130° C (gases)
Standard connection variants:	Taper nut DIN 11851 (liquids) G 1 taper nut DIN 11851 (gases) other connections upon request (e. g. flanges, clamps)
Options:	manually or pneumatically liftable heatable (liquids) Sensor inductive (liquids) cleaning hood (gases)

Constant pressure ratios

These bunging valves with spring return are continuously adjustable.

Exactly adjustable to the desired opening pressure. The valves are closed and opened very sensitively with low differential pressures.

The KIESELMANN bunging valves are available both in open design (free blowing-off of CO2) and in closed design with pipe connection. The closed design enables to collect the excess CO_2.

Bunging valve on a KZE for beer

Bunging valve Type 6268
(spring return)

TECHNICAL DATA	
Nominal widths:	G 1, DN 15*, 25*/32, 40 and 50
Materials:	1.4301/AISI 304 1.4404/AISI 316L for all product wetted parts
Seal materials:	Viton, EPDM
Set pressure:	0,2–4 bar (Type 6268) 0,2– 3,2 bar (Type 6255)
Standard connection variants:	Taper nut DIN 11851, G 1 other connections upon request (e. g. flanges, clamps)

*Approval for gases according to DGRL (PED)

Bunging apparatus Type 6255
including function for safety
(spring return)

Pressure compensation

A multitude of vacuum and pressure compensation valves are available for further applications.

Our application consultants will be pleased to help you to choose the appropriate valve.

In order to guarantee the vessel safety, an additional safety valve is necessary, as for this is characterized by a blow-off performance defined for critical situations and by a operating point fixly adjusted.

Pressure compensation valve on top of a tank

Pressure compensation valve
(spring return)
Type 6132

Pressure compensation valve
(spring return)
Type 6133

Pressure compensation valve
(spring return)
Type 6135

Pressure compensation valve
(spring return)
Type 6131

Anti-Vacuum Valves

Vacuum Protection

KIESELMANN anti-vacuum valves provide very precise response characteristics and excellent flow capacities. The hygienic design offers a perfect cleanability of the sealing and seat area. Moreover, it shows outstanding leak tightness, even at very low operating pressures.

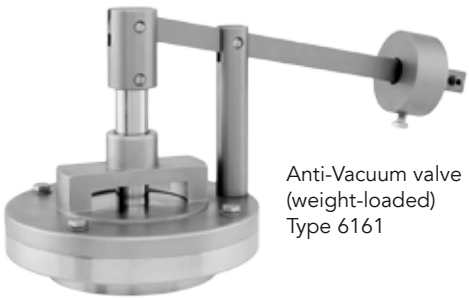
Referring to specific applications, the anti-vacuum valves are available in different sizes and designs, e. g. with counter weight, spring return or compact design.

They can be installed individually as single items or in combination with tank top units.

Anti-Vacuum valve
(spring return)
Type 6160

Additional features:

- Electric trace heater set
- Pneumatic lifting device
- Position sensor



Anti-Vacuum valve
(weight-loaded)
Type 6161

Anti-Vacuum valve
(spring return)
Type 6139

Anti-Vacuum valve
(spring return)
with position sensor
Type 6160

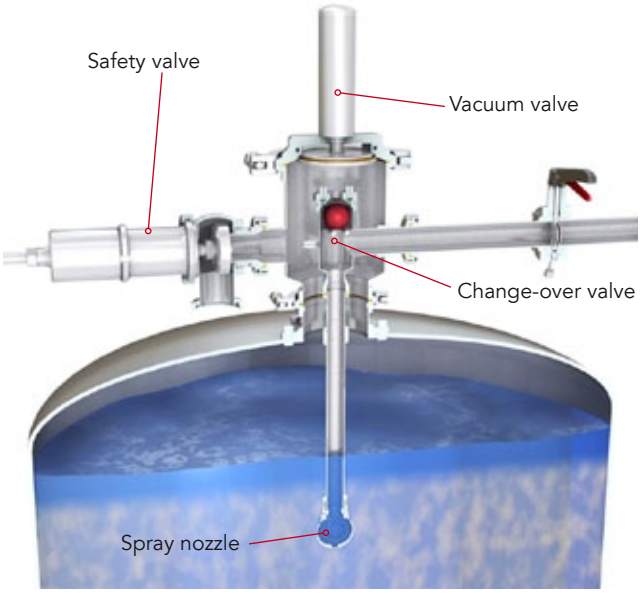
TECHNICAL DATA	
Sizes:	DN 50–250
Materials **Flange of housing:** **Valve disk:** **Shaft:** **Compression spring:**	 1.4301 / AISI 304 1.4301 / AISI 304 1.4301 / AISI 304 1.4315 / AISI 304N
Seal materials:	EPDM (disk) VMQ (flange of housing)
Factory set pressure:	3 mbar (30mmWS)
Operating pressure:	up to 16 bar (depends on nominal width)
Operating temperature:	max. 95° C

Tank Dome Fittings

Overpressure Protection, Vacuum Protection, CO_2 Recovery and Tank Cleaning

Four functions covered by single equipment. The KIESELMANN tank top unit takes up all required equipment and ports with only one connection port to the vessel. CO_2 recovery and CIP supply will be managed by an integrated change-over valve. During CIP the cleaning agent will pass through the unit and the attached tank cleaning device. Small spray nozzles inside the unit ensure an effective cleaning of the wetted surfaces with a minimized cleaning agent consumption. Safety valve and anti-vacuum valve are directly mounted to the tank top unit.

Additional process equipment, such as bunging valves, gauges, fittings and other items may be installed in the connected piping.



Tank dome fitting TDAM during CO_2 recirculation

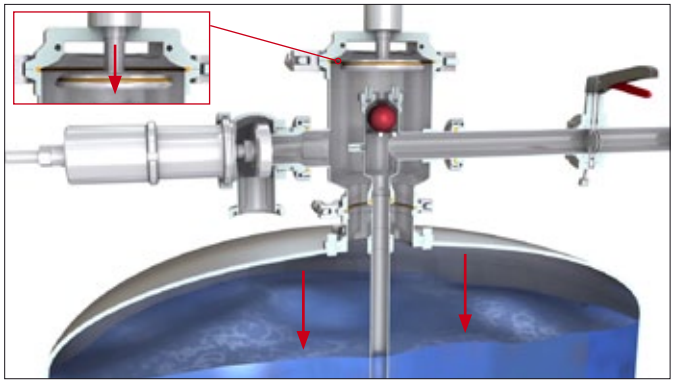
Tank dome fitting TDAM with vacuum-, safety- and change-over valve plus spray nozzle (easy to maintain special equipment version with clamp)

TECHNICAL DATA	
Nominal widths:	DN 50–250
Materials:	1.4301 / AISI 304 1.4404 / AISI 316L for all product wetted parts
Spray nozzle connection:	DN 20–50
Hygiene:	Cleaning certificate TU Munich Weihenstephan
Cleaning of product area:	thanks to the integrated spraying nozzle, changer-over valve and spray holes within the fitting

Functions of the TDAM

Function

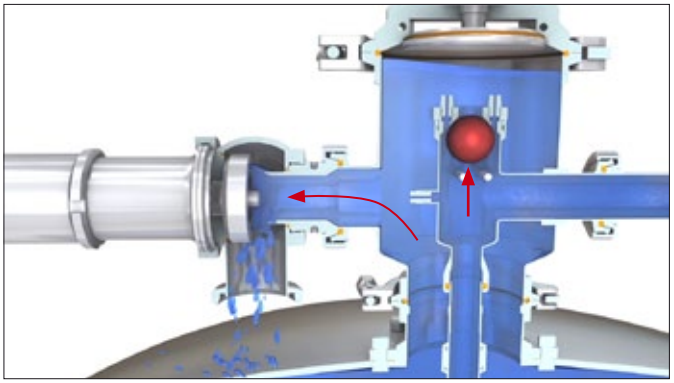
- Vacuum valve opens



A vacuum can occur during tank discharging or due to temperature changes. When the pressure drops below the factory-designated set-pressure the vacuum valve opens, restoring the pressure equilibrium.

Function

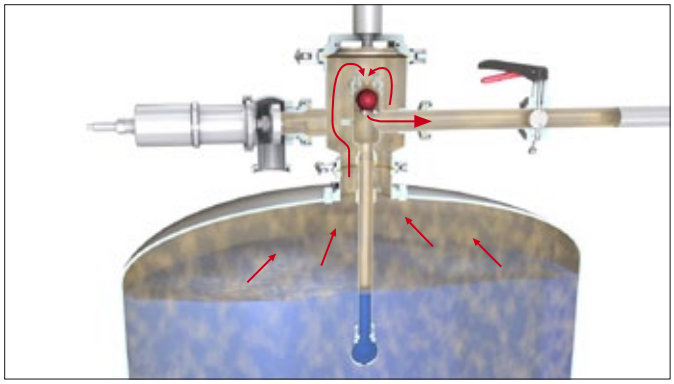
- Change-over valve closes
- Safety valve opens



When an unintentional pressure overload occurs, the safety valve opens and releases media to relieve excess pressure. When this process is completed the safety valve closes and remains completely operational.

Function

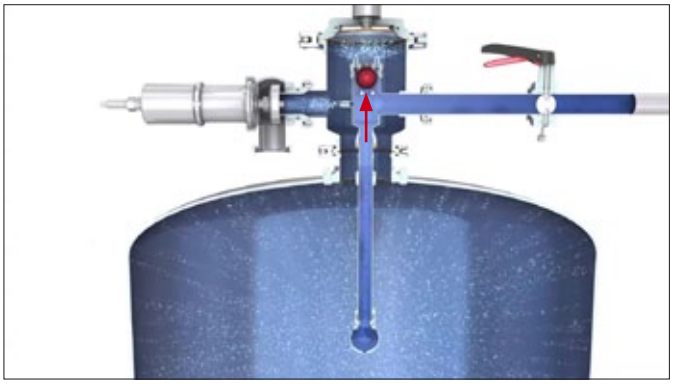
- CO_2 recovery



During fermentation the produced CO_2 is discharged via the changeover valve and the open butterfly valve and can be collected for recovery.

Function

- CIP-Cleaning
- CIP-Supply via the open butterfly valve



During the cleaning process the changeover valve closes and directs the CIP-medium into the tank through the cleaning device. The product-contacting internal surfaces of the TDAM and attached components are cleaned by additional static spray nozzles.

Aseptic Sample Valve

Contamination-proof sampling

KIESELMANN aseptic sampling valves provide best functionality combined with a smooth and ergonomically optimized operability. This progressive design is based on different functional modules, which can be assembled individually or in combination. Available as a simple manually operated valve up to a fully automated assembly, the modular design offers a total assortment of approx. 5000 configurations to be set up for a broad range of applications and customer specific requirements. Moreover, later setup changes or functional add-ons are feasible, just by replacing or adding functional modules.

Basic configurations

- Manual actuation (automatic closing)
- Manual actuation (self-locking)
- Pneumatic actuation
- Pneumatic/manual actuation

Options

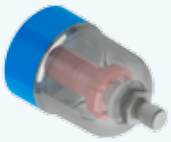
- Position sensor
- Control head
- Manual actuated steam valve (SIP)
- Pneumatic actuated steam valve (SIP)

TECHNICAL DATA	
Sizes:	DN 25–150 (product pipe) 1½"–4" (product pipe) Tank fittings
Materials **product wetted:** **not product wetted:**	 1.4404 / AISI 316L 1.4301 / AISI 304
Seal materials:	PTFE-FTM (bellow seal)
Product pressure:	max. 10 bar (liquids)
Operating temperature:	max. 90° C applicable for CIP / SIP up to 140° C
Tank & pipeline connections:	- Inline clamp connection - Pipe T-piece DN 25–150 / 1½"–4" - Tank welding neck - DN 25 welding neck
Product outlet & rinsing connection:	- DN 10 - G ⅜ - Clip-on - manual / pneumatic steam valve
Actuations:	- manual (spring-loaded) - manual (self-locking) - pneumatic - pneumatic & manual
Automation:	- End position feedback via inductive sensor - Control head
Control air:	4 to 6 bar

Overview of the possible version

Mounted on top/Automation
3 possibilities


Seal ring


End position feedback


Control head

Actuations
4 possibilities


Manual (spring-loaded) with seal ring only


Manual (self-locking) with seal ring only


Pneumatic & manual spring to close only


Pneumatic

Housing connections
17 possibilities


Inline


T-pieces (14 variants: DN 25–150 and 1½"–4")


Tank welding neck


Welding neck DN 25

Outlets
4 possibilities


Screw sockets


Pipe DN 10


Screw socket with blind nut


Clip-on

Rinsing connections
9 possibilities

without rinsing connection


Screw socket


Pipe DN 10


Screw socket with blind nut


Clip-on


Manual steam valve


Pneumatic steam valve


Pneumatic steam valve with end position feedback


Pneumatic steam valve with control head

For your Advantage – The FLUID PROCESS GROUP

KIESELMANN bundles by participation in companies the authority in different parts of plant engineering and component production within the FLUID PROCESS GROUP. This network of independent companies allows to offer and produce complex projects as a general contractor via partner companies, without the common practicing surcharges.

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