RIEGER
NEUMO Ehrenberg Group

ASEPTIC VALVE PROGRAM

TECHNICS IN STAINLESS STEEL FOR FOOD, CHEMICAL AND PHARMACEUTICAL INDUSTRIES

N13

Aseptic valves

Our ideas — your advantages

/ valve body from **solid bar** – different mounting positions possible providing proper draining

/ cleanable and drainable

/ interior surface Ra ≤ 0,8 µm (32) (standard)

/ product **hermetically sealed** against environment

/ no sump or dome in product space

/ **dead space free** design

/ valves available meeting **3-A standards**

/ easy and quick assembly without special tools

/ low maintenance time

/ valves available with DIN, ISO and OD tube sizes

/ standard connection: weld end – optional connections upon request

/ **PTFE bellows FDA** conformance, meets 3-A standards and EG 1935/2004

/ high durability due to improved pressure stability

/ folds remain separated in open valve position allowing optimum cleanability

/ low adhesion on PTFE bellows

/ resistant to aggressive media

/ alternatively: metallic bellows with standard-O-rings (FDA conformance) or PTFE-metal combinations

/ bellows failure indicator

/ Thanks to the **building block system**, actuators and spindles may be changed in case of process or customer modification.

/ The **pneumatic actuator** can be ordered alternatively with function „air to open/spring to close NC", „spring to open/air to close NO" or „air/air".

/ A **3-position actuator** permits a third position in simple static dosing processes.

/ Feedback elements and control tops are mountable.

Hygienic and aseptic valves

the building block system

Proximity Switch

Control Top 24V /110V
or BUS-System

Pneumatic Actuator

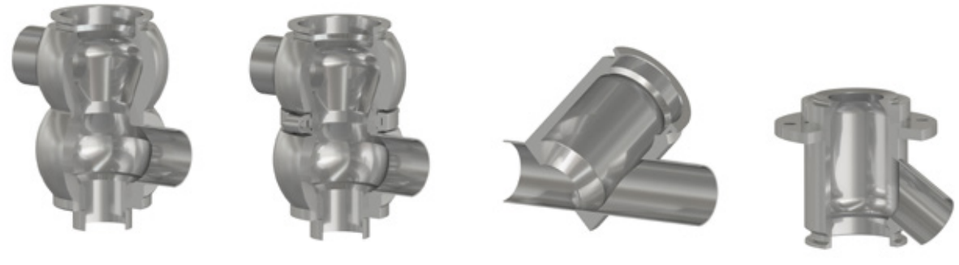
Manual Actuators

Spindles Hygienic Design

Spindles Aseptic PTFE Design

Spindles Aseptic Metalic Design

Body Variations



Aseptic double seat valves N7

for a safe separation of liquids

Valve

/ leakage chamber sterilizable
/ valve body from solid bar
/ no dead space, valve is drainable

Complete product protection

/ safe media separation due to leakage chamber

Seals

/ PTFE bellow
/ PTFE metallic head
/ PTFE-PEEK head

PTFE bellow with metallic head for use in granular media, e.g. strawberries, raspberries, etc.

Building block system

/ possibility to change at any time between PTFE and other seals

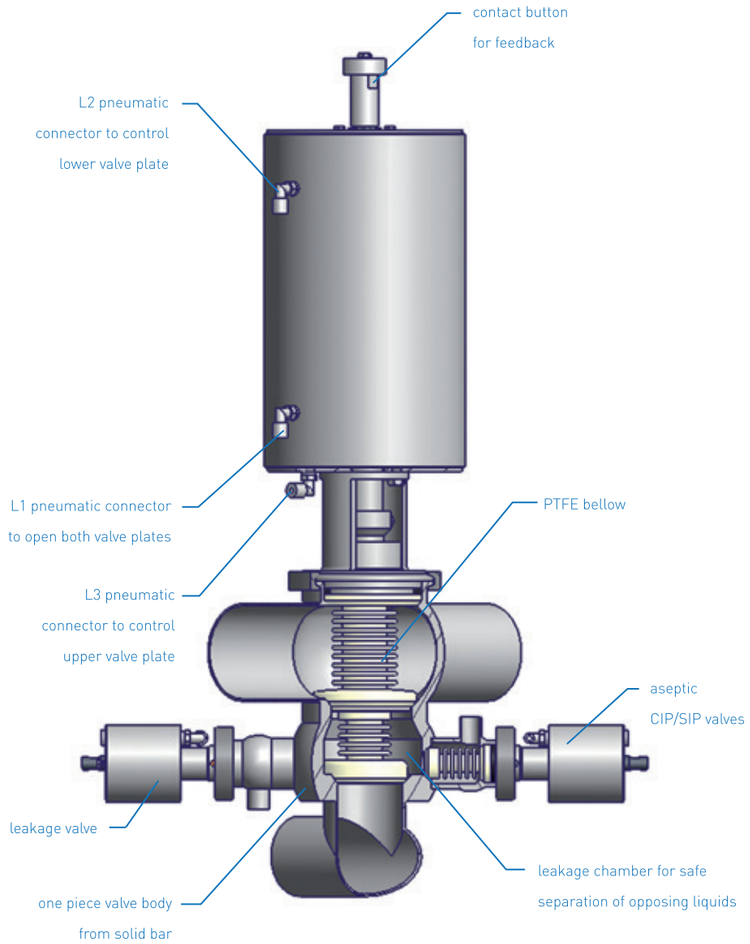
Ease of service

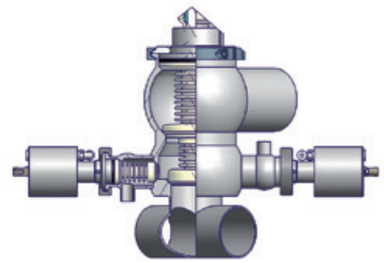
/ change of seals without special tools
/ low maintenance time
/ optimum cleanability

Economic efficiency

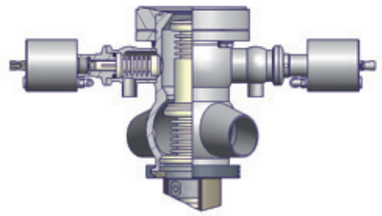
/ long life of PTFE bellows
/ minimal maintenance costs

/ also available as 3-A version





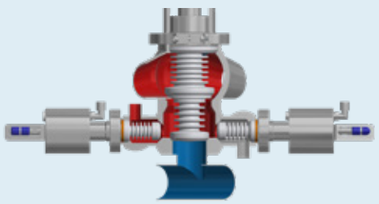
for pipes



for tanks

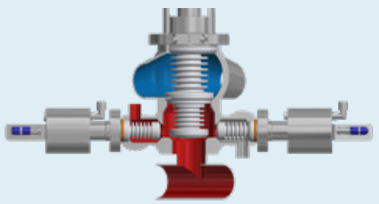
Operating mode

L3 – pneumatic connector to control upper valve plate



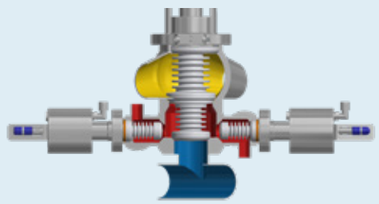
CIP-cleaning and SIP-sterilization of upper valve body including valve seat and leakage chamber; upper valve plate lifted each cycle.

L2 – pneumatic connector to control lower valve plate



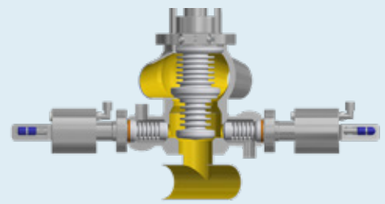
CIP-cleaning and SIP-sterilization of lower valve body including valve seat and safety chamber; lower valve plate lifted each cycle.

CIP-cleaning and SIP-sterilization of the leakage chamber



valve closed

L1 – pneumatic connector to open both valve plates



valve open

Aseptic double seat valve N13

the hybrid between N1 and N7

Two independent PTFE bellows hermetically seal against the environment. The double valve seat separates the two process lines to prevent unwanted mixing of two liquids. The construction reduces CIP valves and permits a very compact shaped valve.

Both the upper and the lower valve chambers may be cleaned independently.

The spherical shape of the valve body with no dead space provides optimal cleaning.

The aseptic process valve N13 combines the advantages of the double seat valve N1 with those of the aseptic process valve N7.

The patent has been granted.

Features

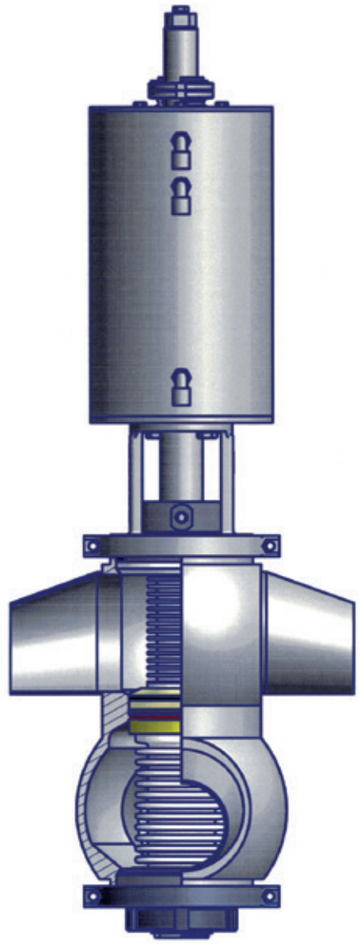
/ PTFE bellow with metallic head

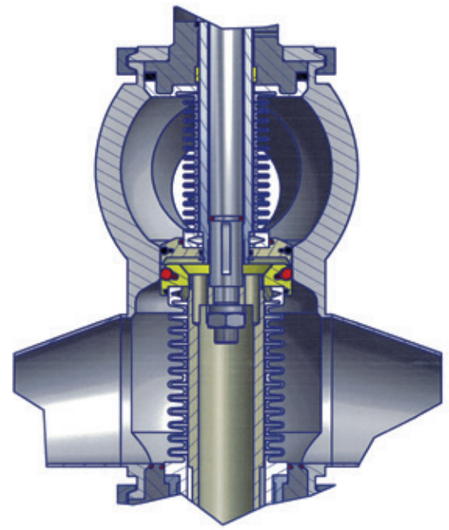
/ leakage free and liftable

/ CIP able and sterilizable

/ vacuum safe

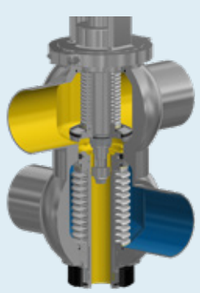
/ identical spare parts from DN 50 to DN 80 (2" - 3")



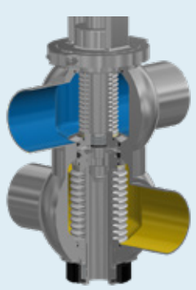


Cleaning process

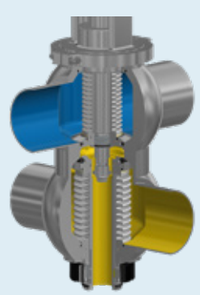
cleaning: upper valve body



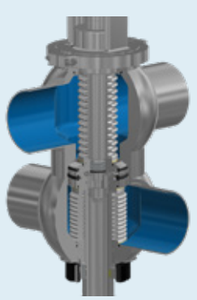
valve closed



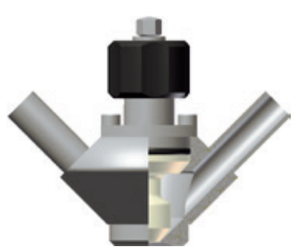
cleaning: lower valve body



valve open



Two modes of operation – pneumatic actuation and manual control – are combined in one valve. This variant permits a new sampling flexibility – as the process requirements may be. The building block system offers unproblematic change between pneumatic and manual actuation.



hand wheel

BioCheck

In aseptic process engineering, process control has become an indispensible element.

By means of the BioCheck sampling valve, samples can be taken out of closed systems including vessels and piping in a simple and safe way.

BioCheck valves were developed paying special attention to compact and true aseptic design. The result is minimal problems when mounting valves in CIP/SIP applications. The product sample is protected from the environment.

Features

/ valve body from solid bar
/ no dead space
/ drainable
/ very small mounting dimensions
/ connections suitable for orbital welding
/ long life of PTFE bellows
/ minimal maintenance costs
/ hermetically sealed against the environment
/ optimum cleanability
/ change of seals without special tools
/ low maintenance time
/ industries of application: pharmaceuticals, bio-pharmaceuticals, bio-chemical, cosmetic, food, dairy and beverage
/ certified according to TA-Luft / VDI 2440 / VDI 3479
/ also available as 3-A version

pipe

tank

clamp

BioConnect

hand wheel

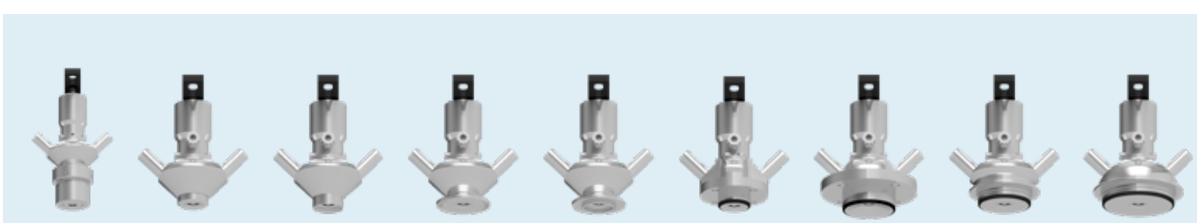
pneumatic actuator

Ingold nozzle

with welded T-piece

All valve bodies are available with single or double outlet.

Construction types of the BioCheck sampling valve



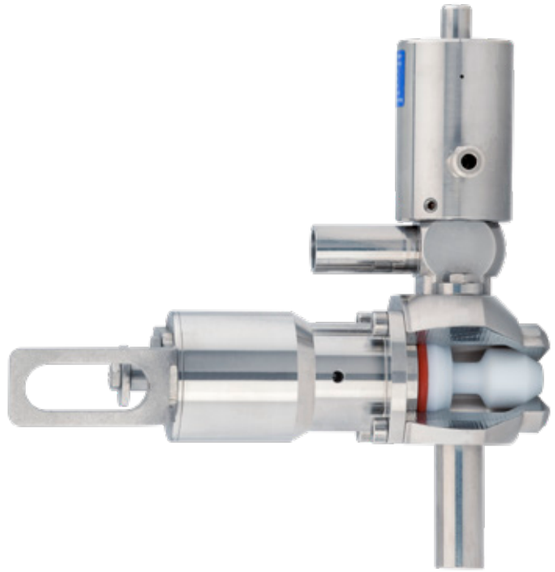
BioCheck Mini

The Mini BioCheck sampling valves meet the requirements for minimal product contact surfaces.

The mini valves allow minimal sampling quantities fulfilling the same valve features in material and design compared to the larger valves such as DN 10 (1/2").

Features

/ pipe, vessel, clamp connection (Ø 25 mm or 34 mm)
/ 1 port for sampling
/ 2 ports for CIP and/or SIP plus sampling
/ DIN 6 (8 x 1 mm pipe)
/ DIN 8 (10 x 1 mm pipe)
/ hand wheel
/ pneumatic (spring to close)
/ pneumatic and lever
/ also available as 3-A version



BioCheck Combi

Features

/ extremely space saving
/ with lever or proximity switch bracket on sampling valve
/ steam valve and product sampling valve are directly mounted to valve body
/ a separate steam valve is not required
/ no product back flow into steam piping during sampling
/ also available as 3-A version

lockable with key

BioCheck Compact

Features

/ all actuators possible
/ hygienic process connections
/ according the newest EHEDG standards
/ bigger hand wheel
/ also available as 3-A version
/ EHEDG certified

Aseptic sampling

into bottle

Features

/ utilizes standard laboratory bottles

/ connection thread GL45 ISO

/ for samples from 100 to 2000 ml

/ no air contamination

/ autoclavable

/ absolute aseptic system

Sampling procedure

/ sterilize entire device

/ insert device into pipe

/ sterilize pipe

/ take aseptic sample

/ close valves

/ remove device from pipe

/ aseptic transport to laboratory

With the BioCheck sampling system, samples can be taken from sealed systems like tanks and pipelines simply and safely.
In the design of this sterile valve, special attention was paid to an aseptic yet at the same time highly compact design. That incorporation in both sterile and CIP/SIP circuits is straightforward and, above all, without contamination.

Drain process

1. The product flows through the pipeline. The BioCheck valve 3 and CIP/SIP valve 1 are closed.

2. After the bottle including bottle head (see picture 1) has been sterilized in the autoclave, connect the bottle to the sampling port. Both valves on the bottle (valve 5 and valve 6) are closed.

3. Open the CIP/SIP valve 1 and bottle valve 5 for sterilization. The steam sterilizes the entire system but not the bottle. This was sterilized before in the autoclave (see 2.).

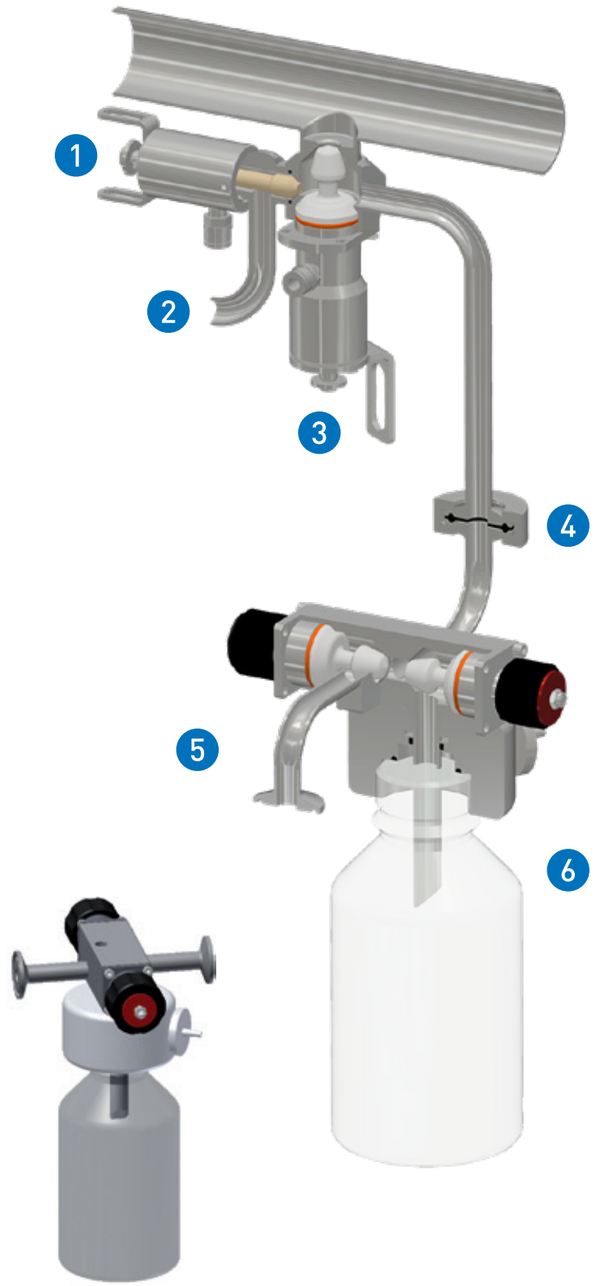
4. Close the CIP/SIP valve 1 and the bottle valve 5.

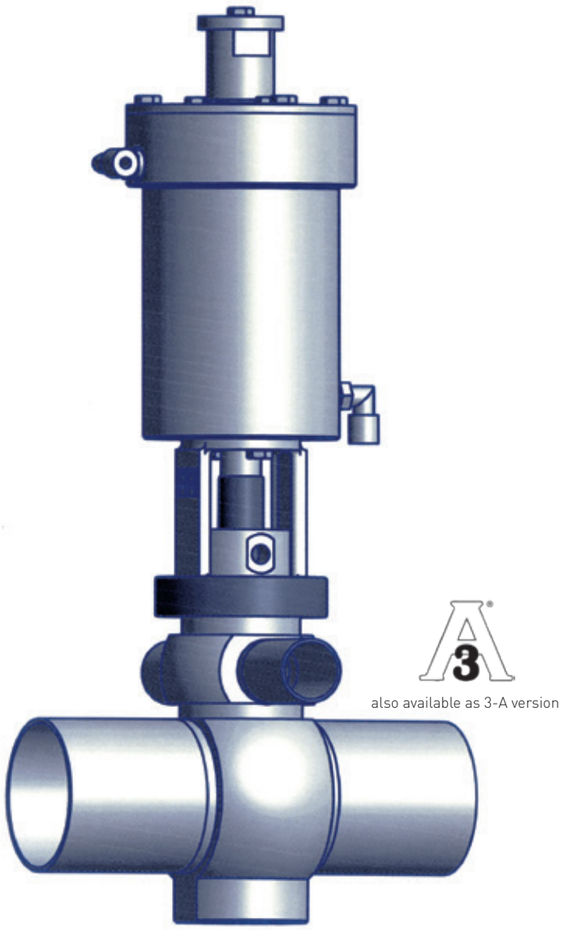
5. Open the BioCheck valve 3 and the valve for sampling in the bottle 6.
The product flows into the bottle.

6. When sampling is completed, close the BioCheck valve 3.

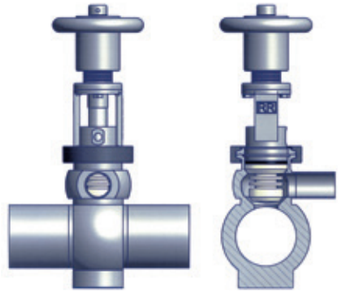
7. After the piping has been drained 4 close the valve for bottle sampling 6 on the bottle.
The entire system is now sealed.

8. Remove the sampling bottle.

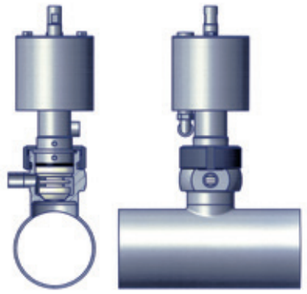




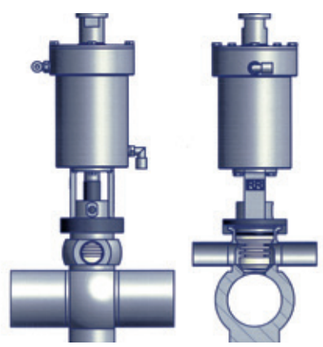
All valves are also available
with only one outlet.



manually actuated with hand wheel D4



pneumatically actuated D31



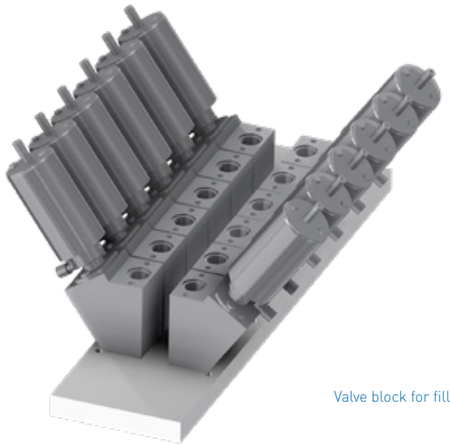
pneumatic with 3-position actuator D71

Aseptic pipe sampling valves allow contamination-free sampling of liquids in pipes without contact to ambient air.

The extraction and pipe bodies are available in several nominal diameters. An optionally available rinsing nozzle serves to clean and sterilize the valve body.

Equipped with either hand wheel, pneumatic actuator or 3-position actuator, thanks to the building block modular system, the valves' actuation can easily be adapted to changed process requirements.

also available as 3-A version



Valve block for filling machines

PTFE bellows

PTFE bellows with
stainless steel cap

PTFE bellows
with PEEK cap

Inclined seat filling valve

The durability of PTFE bellows – optionally available also with a stainless steel cap with O-ring or a PEEK cap for liquids with particles – guarantees low downtimes. Folds remain separated in open valve position allowing optimum cleanablity.

Several valves, which are combined to valve blocks inside filling machines, flawlessly and aseptically fill in products like yogurt.

Aseptic inclined seat valves S

full flow with minimal intrusion

Features

/ valve body from solid bar

/ product hermetically sealed against the environment

/ full product and CIP drainage

/ change of seals without special tools

/ modular system: simple change between hygienic and aseptic version

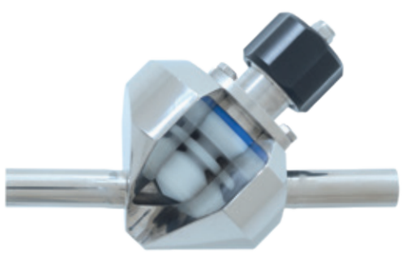
/ with manual or pneumatic actuator

/ minimal pressure loss

/ also available as 3-A version

BioCheck inclined seat valves

Similar to the BioCheck Sampling valve, the BioCheck inclined seat valve offers reliable product safety in size DN 10 DIN (1/2").



with hand wheel

with pneumatic actuator

Pressure retaining valve DH2

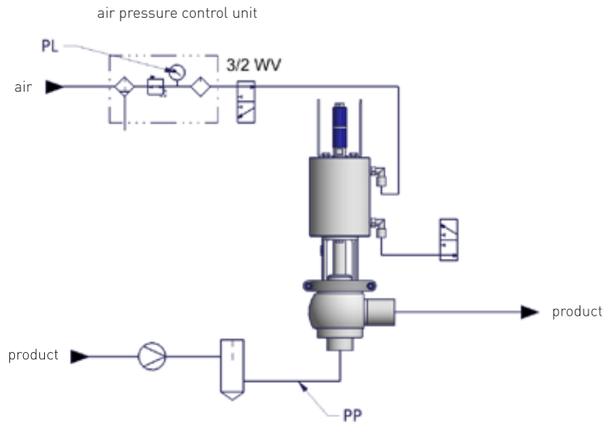
the aseptic constant pressure valve

The **RIEGER pressure retaining valve DH2** fulfills the task to maintain a defined pressure on the valve's inlet side. This may be i.e. the pressure (PP) in a pipe after a filter or heat exchanger.

If the pressure drops after the filter or heat exchanger, the valve automatically adjusts to the requested set pressure.

This is achieved by means of an air pressure control unit, whose pressure gauge is adjusted to the desired pressure of the pressure retaining valve.

The product space is protected by the PTFE-bellows against contamination from ambience, i.e. the "lift effect" is avoided.



Calculation formula for air pressure PL to be adjusted:
PL = (PP x VF) +/- 0,1 bar tolerance
VF = valve factor depending upon size – see catalog

Example for DN 25 with PP (incoming pressure) of 3 bar between filter and pressure retaining valve:
PL = (3 bar x 0,14) +/- 0,1 bar = 0,42 +/- 0,1 bar
i.e. PL: approx. 0,32 to 0,52 bar

also available as 3-A version

Aseptic regulating valves E

exact flow control

In the pharmaceutical industry and also in the food industry, endurance and durability of PTFE control bellows give problem free production while providing product safety. Longer production cycles mean less maintenance costs and thus higher productivity.

Thanks to the building block system, a change in the actuation system is possible at any time, i.e. from manual to pneumatic actuation or vice versa.
Also available as 3-A version.

pneumatically actuated
with positioner

up to DN 20 manually actuated via hand wheel
from DN 25 manually actuated with crank handle

Aseptic overflow angle valve E8

for safe pressure reduction

The Rieger overflow angle valve E8 is a combination of right angle and overflow valves. The desired pressure is adjustable, with a valve stroke as high as possible.

Unlike an overflow valve, this valve can be opened up to 100% – like an angle valve.

The Overflow valve type E8 is suitable for all liquid media. It is not a safety valve. For this purpose, we recommend our TÜV approved safety valve type SH.

Valve structure

/ valve body from solid bar

/ no dead spaces

/ drainable when mounted in various positions

Complete product protection

/ no sump or dome in product space

/ high grade inner surfaces

/ optimum cleanability

Safety

/ clamp union between body and actuator

/ suitable for all liquid media

Economic efficiency

/ building block system: easily change from hygienic to aseptic version

/ standard seals

/ spare parts from the angle valve product range

also available as 3-A version

Material	in contact with product	1.4404/AISI 316L	
	optional	1.4435/AISI 316L (others upon request)	
	not in contact with product	1.4301/AISI 304	
Product contact seals		EPDM (FDA)	PTFE (FDA)
Temperatures	for continuous operation	130 °C (EPDM)* 266 °F	121 °C 250 °F
	for sterilization	150 °C (EPDM)* 302 °F	135 °C (for a short time) 275 °F (for a short time)
Pressure	operating pressure	max. 6 bar (standard) higher upon request max. 87 psi (standard)	
	controlled pressure	min. 6 bar – max. 10 bar min. 87 psi – max. 145 psi	
Surfaces	in contact with product	Ra ≤ 0,8 µm (32)	
	not in contact with product	rotated, Ra ≤ 1,6 µm (63)	
	optional	higher quality surfaces on demand e.g. electro polished	
Connections	standard	weld end	
	optional	all common threads and flange connections	

* depending on operating parameters

Pharmaceutic **Biotechnology** **Cosmetics** **Chemical**	B. Braun Melsungen	Kwizda Pharma
	Bayer Schering Pharma	Merck
	Dr. Hobein (Eubos)	Novartis
	Ecolab	Queisser Pharma
	Fresenius Medical Care	Rentschler
	HAKA Kunz	Sandoz
	Inova pharma systems	Sanofi-Aventis
	kocher-plastik	Sartorius
Dairies	Bayernland	Hochwald
	Bergland Naturkäse	Kärtnermilch
	Breisgaumilch	Meggle
	FrieslandCampina	MZG Molkerei Zeulenroda
	Danone	Starmilch
	DMK	Tirol Milch
	Ehrmann	Zott
Beverages	Altmühltaler Mineralbrunnen	Mineralbrunnen AG
	Brandenburger Urstromquelle	Ricker Fruchtsäfte
	Brasseries Kronenbourg	Sinziger Mineralbrunnen
	EICO-Quelle	Thüringer Waldquell
	Glashäger Brunnen	WEG Weser-EMS
	Markengetränke Schwollen	Ybbstaler Fruchtsaft
Plant engineering	ALPMA Alpenland Maschinenbau	LTH Dresden
	Bawaco GmbH	MHG Anlagenbau
	Belimed	Miteco AG
	BIS Industrietechnik Salzburg	Oystar-Gruppe
	Elopak	Pharmaplan
	Höfliger	Ruland
	HOSOKAWA ALPINE	Seppelec
	Idoneus	SIG Combibloc Systems
	KHS	Täschner Engineering
	Kinetics	Tetra Pak
	Krones	VA Food Processing

Further references upon request. Please use our contact form on our website www.rr-rieger.com

Our valves in operation

... in dairies, for food and beverages

New production techniques and a high safety of process equipment are the challenges of the future. RIEGER valves make a contribution to achieve a maximum of productivity, safety and quality in dairies, food and beverage industry.

Strictly made of solid bar, the valve bodies even comply with very high requirements in terms of puncture resistance, absence of distortions and stability. Precisely tailored, either as single valve or combined to valve blocks, they accurately fit in installations while being exchangeable among each other.

The building block system allows unproblematic change between manual and pneumatic actuation as well as between hygienic and aseptic realisation. Equally, a modification of the sealing system is simple – from "spring close / air open" to "spring open / air close" and vice versa.

Thus, RIEGER valves are easily adaptable to changing process requirements.
We adapt our valves to your process. So you don`t have to adapt your process.

Aseptic production equipment in the area of the pharmaceutical and biotechnological industry set new benchmarks for aseptic components such as valves. These are only met with a consequent selection of materials and an uncompromisingly aseptic realisation.

Integrated into pharmaceutical installations for absolutely clean applications, RIEGER valves successfully demonstrate their excellent aseptic properties since years by hermetically separating products from the environment.

RIEGER valves can be found all over the world. Whether Europe, Asia, Africa, Oceania or America – they call every continent and every climate zone their home.

As a renowned German company and part of the worldwide operating NEUMO Ehrenberg Group, RIEGER disposes of the necessary economic capacity and international experience to supply all markets.

Whether bottom seat valves for fermenters, inclined seat valves with bottling functions or sampling valves, the emphasis of construction is always laid on the proper aseptic operation of the valve.

The RIEGER valve range stands for realibility in process control and installations

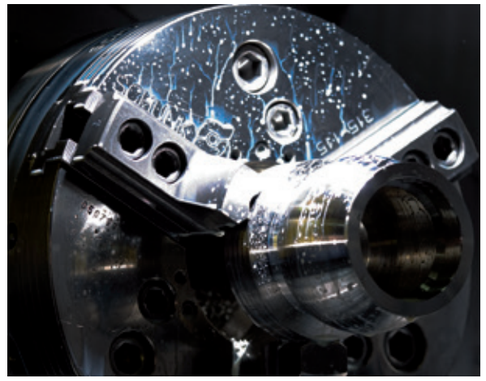
The company

RIEGER
NEUMO Ehrenberg Group

The company Rieger is a company with long tradition. It was founded 1879 as machine factory in the center of Aalen.

Being subdivided into the two departments machine factory and aluminium foundry, today, RIEGER is member of the worldwide operating NEUMO Ehrenberg Group.

RIEGER machine factory successfully competes in the areas of armatures, valves and welded constructions. All products are basically made of stainless steel, offering the full range of stainless steel types from AISI 304 via 316 L up to hastelloy steel and special materials.



2019
Acquisition of new Premises in Aalen

2015
Foundation of RIEGER USA

2012
Aseptic Pigging System

2005
DIN ISO 9001 Certification

2004
First 5 - Axis Machining Center

2002
3-A Approval for the US Market

2001
FEM Calculations

2000
Aseptic Valve Technology

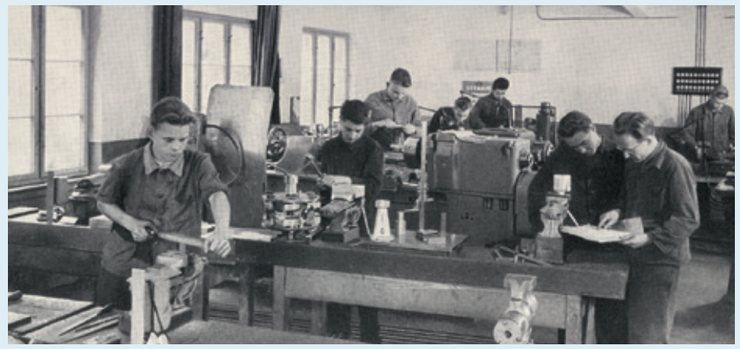
1999
Double Seat Mix Proof Valves

1991
Moving into the industrial area

1958
Member of NEUMO Ehrenberg Group

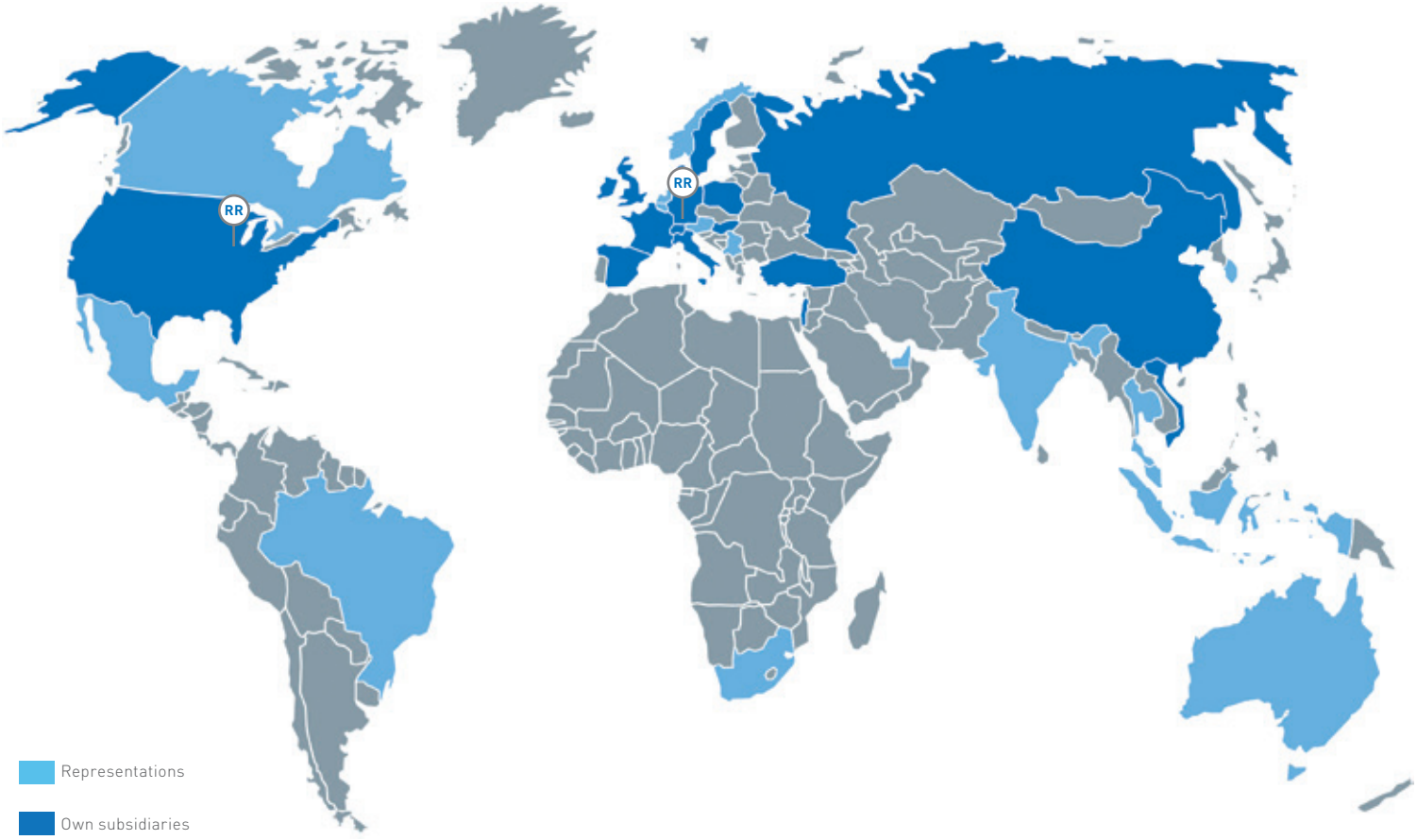
1879
Foundation

Company founder Heinrich Rieger



RIEGER worldwide

NEUMO Ehrenberg Group



The **NEUMO Ehrenberg Group** is a family run holding, which is operating worldwide with more than 2.100 employees.

Since 1958 **Gebr. Rieger** has been a member of the NEUMO Ehrenberg Group. In our department valve technology Gebr. Rieger is successfully working in the **fields of valves**, **customized solutions**, such as **valve blocks** and **tubular structures** as well as **system engineering**, which includes **valve clusters, units, CIP-systems** and all kinds of **plug and play solutions**.

By its global approach Rieger gained international attention in the markets of **food, beverage** and **pharmaceutical industries**.

Besides the **Sampling Valves** the valve range also includes **Mix Proof Valves, Filling Valves** and **Pigging Systems**.

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