ASEPTIC VALVE PROGRAM

Technics in stainless steel for food, chemical and pharmaceutical industries
ASEPTIC SINGLE SEAT 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 and EHEDG
- 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
- 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.
- Feed back elements and control tops are mountable.
HYGIENIC AND ASEPTIC SEAT VALVES
The building block system

- Proximity switch
- Control top
- Pneumatic actuators
- Spindles – aseptic PTFE bellow design
- Body combinations
HYgieNic AND Aseptic seA t VAlVes

The building block system

Manual actuators

Spindles – hygienic design

Spindles – aseptic metallic bellow design
ASEPTIC DOUBLE SEAT VALVE N7
... for a safe separation of liquids

VALE STRUCTURE
- leakage chamber sterilizable
- valve body from solid bar
- no dead space, valve is drainable

COMPLETE PRODUCT PROTECTION
- safe media separation due to leakage chamber
- meeting 3-A standards

SEAL
- PTFE bellow

BUILDING BLOCK SYSTEM
- possibility to change at any time between PTFE, and PTFE-metallic combination

EASE OF SERVICE
- change of seals without special tools
- low maintenance time
- optimum cleanability

ECONOMIC EFFICIENCY
- long life of PTFE bellows
- minimal maintenance costs

OPERATING MODE
L3 – pneumatic connector to control upper valve plate
CIP-cleaning and SIP-sterilization of upper valve body including valve seat and safety chamber; upper valve plate lifted each cycle.

PTFE bellow with metallic head for use in granular media, e.g. strawberries, raspberries, etc.
L1 pneumatic connector to open both valve plates

L2 pneumatic connector to control lower valve plate

L3 pneumatic connector to control upper valve plate

Aseptic CIP/SIP valves

PTE bellow

Leakage chamber for safe separation of opposing liquids

One-piece valve body from solid bar

Contact button for feedback

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

Valve closed

Valve open

CIP-cleaning and SIP-sterilization of the security chamber

For pipes

For tanks

5
ASEPTIC DOUBLE SEAT VALVE N13
... uncompromisingly aseptic

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 independently cleaned.

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

With pressures up to 20 bar (290 psi), the N13 guarantees fully aseptic process in a new and uncomplicated manner.

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 cap
- leakage free and liftable
- CIP able and sterilizable
- vacuum safe
- prevents up to 20 bar (290 psi) against mixture of product and CIP solution
- identical spare parts from DN 50 to DN 80 (2” - 3”)
- EHEDG-certified
The removing of CIP-valves to clean the product area allows a very compact and small valve body regarding its functionality. In terms of control, the integration of this valve into the production process needs a significantly lower effort than common process valves.
In aseptic process engineering, process control has become an indispensable 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

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.
All valve bodies are available with single or double outlet.

CONSTRUCTION TYPES OF THE BIOCHECK SAMPLING VALVE
MINI ASEPTIC SAMPLING VALVE
... small but mighty

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").

OPTIONS

- 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
**BIOCHECK COMBI VALVE**

... no dead spaces

**FEATURES**

- extremely space saving
- with lever or proximity switch bracket on sampling valve
- steam 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

**TYPE EL - CLASS I**

for clamp mounting

for pipe or tubing

for tank (vessel) mounting
ASEPTIC SAMPLING VALVE D
... pipe sampling valve from DN25

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.

All valves are also available with only one outlet.
BOTTOM SEAT VALVE
... combined with CIP valves

DIRECT STERILIZATION OF VALVE BODY WITHOUT DEAD SPACES

- with one or two CIP valves
- main valve as well as CIP valves either manually or pneumatically actuated
- very small mounting dimensions

BOTTOM SEAT COMBINATION VALVES ARE AVAILABLE IN MANY VARIATIONS
ASEPTIC SAMPLING

... into bottle

ASEPTIC SAMPLING
- 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
ASEPTIC FILLING VALVE
... aseptic filling guaranteed

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 idle times. Folds remain in open valve position allowing optimum cleanability.

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

PTFE bellows
PTFE bellows with stainless steel cap
PTFE bellows with PEEK cap
Valve block for filling machines

inclined seat filling valve – filling in a new dimension
ASEPTIC INCLINED-SEAT VALVE 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

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
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:

\[
PL = (PP \times VF) \pm 0.1 \text{ bar Tolerance}
\]

\(VF\) = valve factor depending upon size – see catalog

Example for DN 25 with PP (incoming pressure) of 3 bar between filter and pressure retaining valve:

\[
PL = (3 \text{ bar} \times 0.14) \pm 0.1 \text{ bar} = 0.42 \pm 0.1 \text{ bar}
\]

i.e. PL: approx. 0.32 to 0.52 bar
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 modular system, a change in the actuation system is possible at any time, i.e. from manual to pneumatic actuation or vice versa.

pneumatically actuated with control top

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

For safety reasons, we place a clamp union around body and actuator in case of nominal diameters DN 25 and larger. This clip can only be removed with a tool. 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
## TECHNICAL DATA

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>in contact with product</th>
<th>1.4404/AISI 316L</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>optional</td>
<td>1.4435/AISI 316L</td>
</tr>
<tr>
<td></td>
<td>not in contact with product</td>
<td>1.4301/AISI 304</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PRODUCT CONTACT SEALS</th>
<th>EPDM (FDA)</th>
<th>PTFE (FDA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEMPERATURES</th>
<th>for continuous operation</th>
<th>130 ºC (EPDM)* 266 ºF</th>
<th>121 ºC 250 ºF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>for sterilization</td>
<td>150 ºC (EPDM)* 302 ºF</td>
<td>135 ºC (for a short time) 275 ºF (for a short time)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PRESSURE</th>
<th>operating pressure</th>
<th>max. 6 bar (standard edition) max. 87 psi (standard edition)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>controled pressure</td>
<td>min. 6 bar – max. 10 bar min. 87 psi – max. 145 psi</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SURFACES</th>
<th>in contact with product</th>
<th>Ra &lt;= 0,8 µm (32)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>not in contact with product</td>
<td>rotated, Ra &lt;= 1,6 µm (64)</td>
</tr>
<tr>
<td></td>
<td>optional</td>
<td>higher quality surfaces on demand</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONNECTIONS</th>
<th>standard</th>
<th>weld end</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>optional</td>
<td>all common threads and flange connectors</td>
</tr>
</tbody>
</table>

* depending on operating parameters
# REFERENCES

... industries of application

<table>
<thead>
<tr>
<th><strong>PHARMACEUTICAL INDUSTRY / BIOTECHNOLOGY / COSMETICS / CHEMICAL INDUSTRY</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Braun Melsungen</td>
<td>Kwizda Pharma</td>
</tr>
<tr>
<td>Bayer Schering Pharma</td>
<td>Merck</td>
</tr>
<tr>
<td>Dr. Hobein (Eubos)</td>
<td>Novartis</td>
</tr>
<tr>
<td>Ecolab</td>
<td>Queisser Pharma</td>
</tr>
<tr>
<td>Fresenius Medical Care</td>
<td>Rentschler</td>
</tr>
<tr>
<td>HAKA Kunz</td>
<td>Sandoz</td>
</tr>
<tr>
<td>Inova pharma systems</td>
<td>Sanofi-Aventis</td>
</tr>
<tr>
<td>kocher-plastik</td>
<td>Sartorius</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>DAIRIES</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bayernland</td>
<td>Kärntermilch</td>
</tr>
<tr>
<td>Bergland Naturkäse</td>
<td>Meggle</td>
</tr>
<tr>
<td>Breisgaumilch</td>
<td>MZG Molkerei Zeulenroda</td>
</tr>
<tr>
<td>FrieslandCampina</td>
<td>Nordmilch</td>
</tr>
<tr>
<td>Danone</td>
<td>Starmilch</td>
</tr>
<tr>
<td>Ehrmann</td>
<td>Tirol Milch</td>
</tr>
<tr>
<td>Hochwald</td>
<td>Zott</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>BEVERAGES</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Altmühralter Mineralbrunnen</td>
<td>Mineralbrunnen AG</td>
</tr>
<tr>
<td>Brandenburger Urstromquelle</td>
<td>Ricker Fruchtsäfte</td>
</tr>
<tr>
<td>Brasseries Kronenbourg</td>
<td>Sinziger Mineralbrunnen</td>
</tr>
<tr>
<td>EICO-Quelle</td>
<td>Thüringer Waldquelle</td>
</tr>
<tr>
<td>Glashäger Brunnen</td>
<td>WEG Weser-EMS</td>
</tr>
<tr>
<td>Markengetränke Schwollen</td>
<td>Ybbstaler Fruchtsaft</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>PLANT ENGINEERING</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ALPMA Alpenland Maschinenbau</td>
<td>Krones</td>
</tr>
<tr>
<td>AT Anlagentechnik</td>
<td>Lührke</td>
</tr>
<tr>
<td>Belimed</td>
<td>LTH Dresden</td>
</tr>
<tr>
<td>BIS Industrietechnik Salzburg</td>
<td>MHG Anlagenbau</td>
</tr>
<tr>
<td>Döhler Engineering</td>
<td>Miteco AG</td>
</tr>
<tr>
<td>Elopak</td>
<td>Oystar-Gruppe</td>
</tr>
<tr>
<td>Höfliger</td>
<td>Pharmaplan</td>
</tr>
<tr>
<td>HOSOKAWA ALPINE</td>
<td>Ruland</td>
</tr>
<tr>
<td>Idoneus</td>
<td>Seppelec</td>
</tr>
<tr>
<td>KHS</td>
<td>SIG Combibloc Systems</td>
</tr>
<tr>
<td>Kinetics</td>
<td>Tetra Pak</td>
</tr>
</tbody>
</table>

Further references upon request. Please use our contact form on our website [www.rr-rieger.de](http://www.rr-rieger.de)
Aseptic 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.
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 hermitically separating products from the environment.

RIEGER valves are used globally, complying with the requirements of each climate zone: in breweries in Mexico, in dairies and breweries in China and Vietnam, in pharmaceutical installations in Brazil and USA and in mineral wells in Germany. As renowned German company and part of the worldwide operating Neumo-Ehrenberg-Gruppe, 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 valves.
THE COMPANY

The firm Rieger Brothers is a company with long tradition. It was founded 1879 as machine factory in the center of Aalen. At the beginning of 1991, the company moved into a new and modernly constructed factory building at the outskirts of Aalen.

Being subdivided into the two departments machine factory and aluminium foundry, today, Rieger Brothers is member of the worldwide operating Neumo-Ehrenberg-Gruppe.

Rieger Brothers’ machine factory successfully competes in the areas of armatures, valves, welded constructions and tap pumps. 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.
Our products, which prove their worth in long duration utilization, and especially our constructions in the aseptic valve area are primarily used in chemical, pharmaceutical and food industries. Rieger Brothers offers for many sectors mature solutions in stainless steel.

Experienced and motivated employees ensure the high quality standard of our products. Modern manufacturing technology like machining centers lay the foundation of a distortion-free utilization of our armatures, valves and components.

The more advanced will prevail over the already well – following this spirit, our construction department continuously develops new solutions to support our clients in optimizing their processes. Inspired by client specific challenges, their solutions are convenient for many clients.

Our striving for improvement was first rewarded in 2005 with the certification according to ISO 9001/2000. The re-certifications in the years 2008 and 2011 according to ISO 9001:2008 guarantee our clients that our attention will continue to be focussed on innovation, customer proximity and the reliability of our products.
NEUMO-Ehrenberg-Gruppe worldwide

NEUMO GmbH & Co. KG
Henry-Ehrenberg-Platz 3
D-75438 Knittlingen
Phone: 07043/36 0
Fax: 07043/36-130
Mail: info@neumo.de
Web: www.neumo.de

Gebr. Rieger GmbH & Co. KG
Kochertalstraße 32
D-73431 Aalen
Phone: 07361/ 57 02 0
Fax: 07361/ 57 02 51
Mail: info@rr-rieger.de
Web: www.rr-rieger.de

AWH Armaturenwerk
Hötensleben GmbH
Schulstraße 5-6
D-39393 Hötensleben
Phone: 039405/ 92-0
Fax: 039405/ 92-111
Mail: info@awh.de
Web: www.awh.de

DAMSTAHL a/s
Danmarksvej 28
DK-8660 Skanderborg
Phone: +45 8794 4100
Fax: +45 8794 4155
Mail: damstahl@damstahl.com
Web: www.damstahl.com

NEUMO Budapest Kft
Pesti Ut 474
HU-1172 Budapest
Phone: +36-1 31 74 177
Fax: +36-1 26 68 765
Mail: neumo@neumo.hu
Web: www.neumo.hu

Egmo Ltd.
P.O. Box 1111
IL-22110 Nahariya
Phone: +972-4 985 51 11
Fax: +972-4 985 51 75
Mail: sales@egmo.co.il
Web: www.egmo.co.il

VNE Corporation
1149 Barberry Drive
Janesville
WI 53547-1698 – U.S.A.
Phone: +1-608 756 49 30
Fax: +1-608 756 36 43
Mail: stainless@vnecorp.com
Web: www.vnestainless.com

NEUMO Spain S.L.
C/Grecia s/n
Nave B18
Poligono Industrial Constanti
ES-43120 Tarragona
Phone: +34 977 52 49 14
Fax: +34 977 48 98 48
Mail: neumo-es@neumo-es.com
Web: www.neumo-es.com

NEUMO Polska Sp. Z o.o
Centrum Stali
Nierdzewnej i Kwasoodpornej
Stróbów
PL-96-102 Skierniewice
Phone: +48 46 334 43 06
Fax: +48 46 332 56 26
Mail: neumo@neumo.pl
Web: www.neumo.pl

NEUMO Mühendislik ve Pazlanmaz
Çelik San. Ve Tic. Ltd. Sti
Birlik Sanayi Sitesi 6
TR-34520 Beylikdüzü
Istanbul
Phone: +90-212/875 0 141
Fax: +90-212/875 0 313
Mail: info@neumo.com.tr
Web: www.neumo.com.tr

NEUMO-VARGUS (SHANGHAI)
TRADING CO., LTD
Room 208, Building A, No. 2,
Lane 58, Xinjian East Road
201100 Shanghai, PR. China
Phone: +86 21 54 17 7932
Fax: +86 21 54 17 8190
Mail: info@neumo.com.cn
Web: www.neumo-vargus.com.cn

NEUMO GmbH & Co. KG
Representative Office Ha Noi / Vietnam
13 N1, Group 130, Hoang Cau Street
Dong Da District
Ha Noi
Vietnam
Phone: +84 437 736 586
Fax: +84 437 736 587
Mail: neumovn@ftp.vn

NEUMO GmbH & Co. KG
Representative Office
Ho Chi Minh City / Vietnam
30/11C Mac Dinh Chi Street
Ho Chi Minh City
Vietnam
Phone: +84 838 242 102
Fax: +84 838 242 102
Mail: info@neumo.com.vn