



GEMÜ stainless steel components for solvent applications in the semiconductor industry

Process description

Organic solvents such as isopropanol, acetone and N-methylpyrrolidone (NMP) are used in the semiconductor industry to dissolve substances and for cleaning purposes. For example, in the lithography process, photoresist is removed with special solvents. Solvents have a low flash point and due to the conductivity, stainless steel components are particularly well suited here. GEMÜ offers a tailored product range of stainless steel valve components for this area of application.

Product requirements

- Strict regulations with regard to fire and explosion protection
- Consistent EX zone for solvent systems and valve technology
- Electropolished surfaces ($R_a < 0,4 \mu\text{m}$ oder $R_a < 0,25 \mu\text{m}$)
- Stainless steel valve body from forged or block material
- Joint via butt weld spigots or VCR connections

Stainless steel diaphragm valves – the perfect choice for solvent supply

All GEMÜ stainless steel diaphragm valves are generally suitable for high-purity solvent applications. The following product types, however, are particularly well suited to the task. If several valve functions need to be represented in the smallest of spaces, M-block solutions are a good option. In addition to traditional butt weld connections, GEMÜ also offers VCR connections.

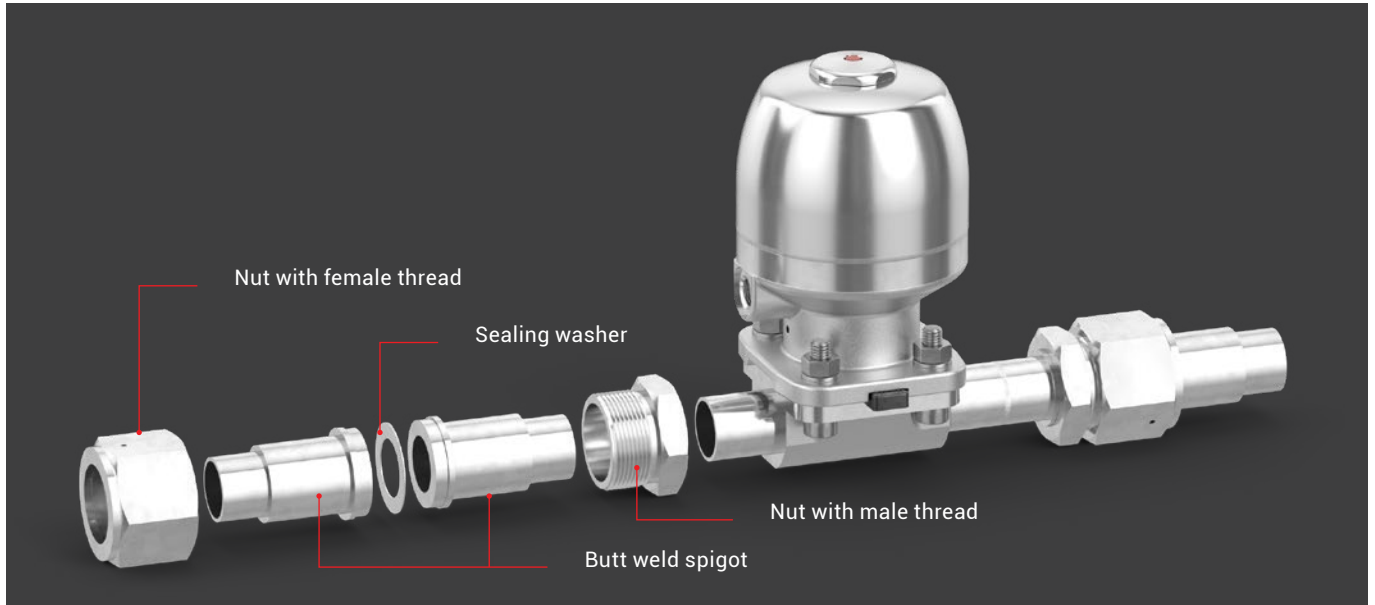


Functional principle of VCR

VCR connections are non-permanent unions with what is known as a "metal-face-to-face" sealing concept, which was originally used in gas applications. Thanks to the union, customers have greater flexibility in the development of their plants and when replacing components.

Order code

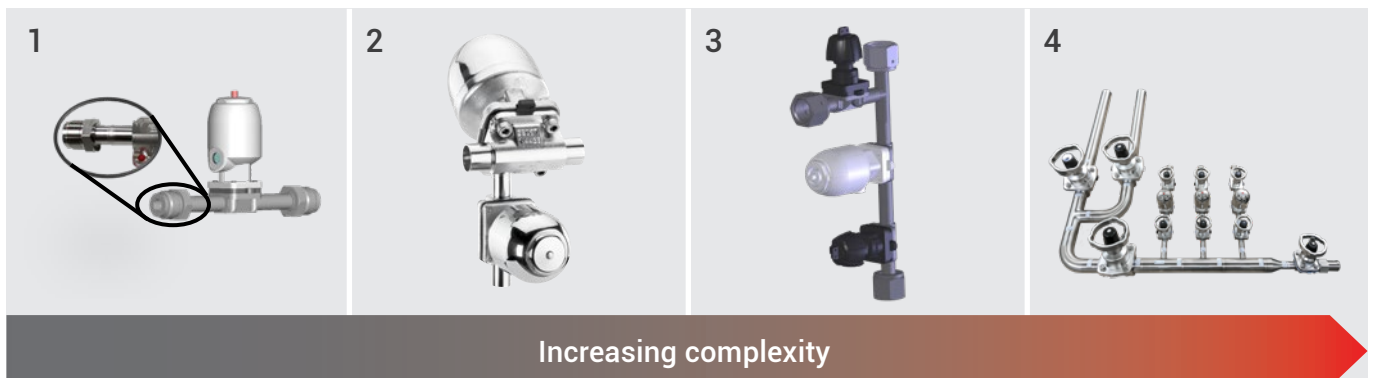
- Pipe union with flush stainless steel sealing contour; union nut with male thread
→ *Connection type code MV Ra < 0.4 µm or Ra < 0.25 µm*
- Pipe union with flush stainless steel sealing contour; union nut with female thread
→ *Connection type code FV Ra < 0.4 µm or Ra < 0.25 µm (weld seam not reworked/electropolished)*



From component supplier to solutions provider

By collaborating with customers and plant engineers, GEMÜ has developed from a simple supplier of single components to manufacturing simple welding and stick configurations and has now established itself as a development partner for sub-assemblies and subsystems.

- [1] A VCR connection is a common connection type for the simple installation and replacement of components in various applications in the semiconductor industry.
- [2] Simple welding configurations such as i-bodies in a wide variety of configurations enable space-saving installation and make it possible to go without additional fittings.
- [3] If a customer needs a specific unit of components and various connections and sizes, GEMÜ offers customized sticks and assemblies, which are primarily used in media distribution.
- [4] Thanks to the many years of experience of the GEMÜ staff, complex sub-assemblies such as manifolds can be designed, manufactured and assembled to customer requirements. The additional integration of measurement and control systems enables process reliability through monitoring and automation.



GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG
 Fritz-Müller-Straße 6-8 · 74653 Ingelfingen · Germany
 Phone +49 (0)7940 123-0 · info@gemue.de