

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.

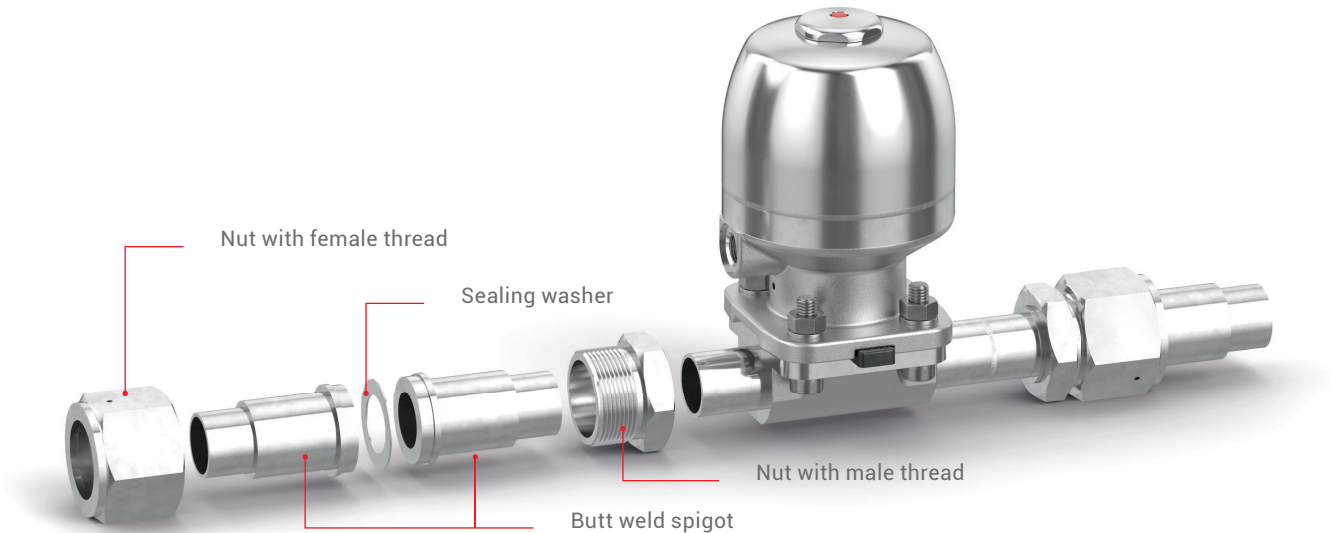


Functional principle of VCR

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.

