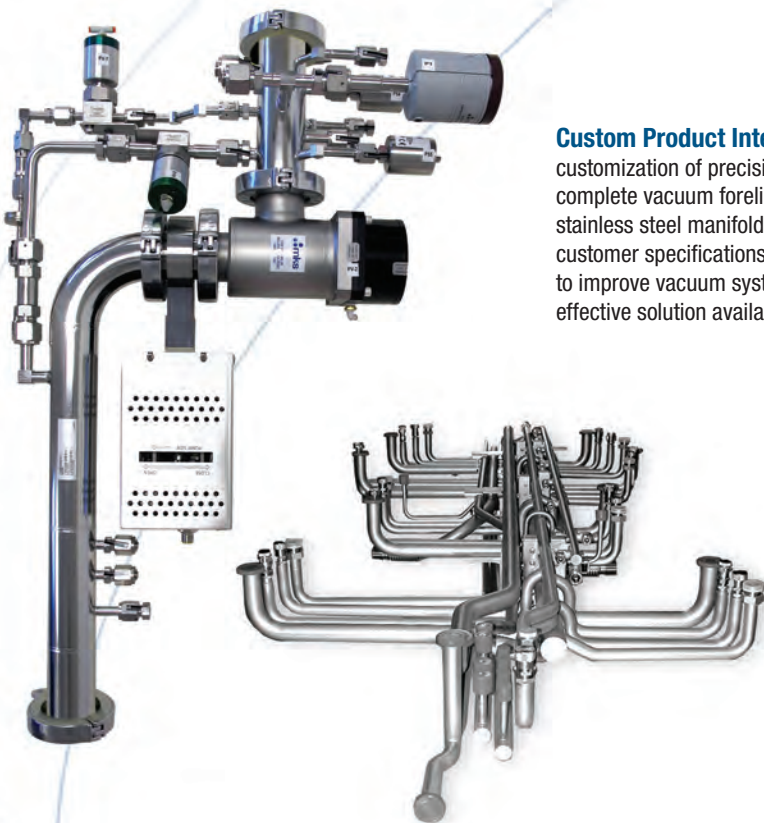


Integrated Process Solutions

Stainless Steel Vacuum Fittings — MKS offers a wide variety of fittings and components including tees, crosses, elbows, tubes, flanges, end caps, reducers, and seals in standard sizes and configurations. They are offered in Series 23 ButtWeld, Series 31 ISO-KF, Series 76 ISO-Universal, and Series 88 CF components.



Custom Product Integration — MKS specializes in the manufacture and customization of precision mechanical assemblies that include gauge trees and complete vacuum forelines. These integrated systems, comprised of isolation valves, stainless steel manifolds, vacuum components and heater jackets, can be built to customer specifications or designed by our engineering professionals. We will work to improve vacuum system performance and uptime while providing the most cost-effective solution available.



Custom Manifolds — MKS is an industry leader in the manufacture of manifold assemblies, offering solutions that are designed and built to customer specifications. Great emphasis is placed on product quality, cleanliness and leak integrity. All components are cleaned using a fully automated process that complies with the strictest industry standards.

Heaters — MKS heater jackets are developed for use on stainless steel tubing, components, and valves. Cutting-edge design and manufacturing processes optimize thermal transfer, enabling effective heating while keeping the outside of the jackets cool to the touch. Specially tailored insulators keep the flanges hot, eliminating cold spots due to exposure to the surrounding environment.

MKS offers three types of heater technologies; silicon molded heaters, PTFE and Polyimide heaters. Polyimide heaters employ cutting edge materials for both the insulation and jacketing technology to provide superior performance and value. PTFE heaters utilize a proprietary Teflon®-woven shell achieving ultra-low particulate generation, providing maximum performance and preventing surface contamination. This versatility enables the best solution for the application, with required temperatures ranging from near ambient to 250°C as a standard. Available options include digital control, display and communication of multiple parameters for each heater in the installed system.



Custom Process Traps and Virtual Wall™ — MKS' patented line of traps are highly efficient and compact. Designed for specific processes in industrial and semiconductor manufacturing, byproducts are efficiently contained, protecting the process chamber, pumps, gauging, and anything that can be damaged or negatively impacted by process chemistries. When used in conjunction with our heated products, the results include increased uptime, longer pump life, safer cleaning and byproduct disposal, and higher process yields.

MKS' unique Virtual Wall™ is a patented device that creates a nitrogen boundary layer inside vacuum lines. Vacuum foreline and exhaust line configurations are available for increased uptime, reduced particles and maintenance, and improved throughput.



Effluent Management Subsystems™ — Effluent Management Subsystems™ are vacuum and exhaust line solutions designed for a specific process. The combination of heating, traps, valves and other process components keep byproducts from clogging the forelines or backstreaming into the process. Detailed process understanding by our engineers, along with a choice of heater temperatures and trap designs, allows MKS to provide the optimum solution for many corrosive processes including LPCVD-Silicon Nitride, LPCVD-TEOS, WCVD, SABPSG, and Metal Etch.

Biopharmaceutical Heating Solutions — MKS offers a full line of self regulating electric heaters for stainless steel filter housings and single use technology (SUT) filters. The MKS engineering team can design custom solutions to meet specific needs including NEMA-rated heaters.



