Silcolloy® 2000

The corrosion resistant. high-temperature coating technology.

The Silcolloy® 2000 coating process results in a chemically protective, corrosion resistant, multi-layered barrier of amorphous silicon. Applied by a chemical vapor deposition (CVD) process, the Silcolloy process is the ideal choice for protecting stainless steels, exotic metals, glass, ceramics, and other alloys from temperature degradation, corrosive attack, and process stream contamination.

The Kurt J. Lesker Company is proud to offer its standard manufacture and custom vacuum parts now with SilcoTek's game-changing CVD coating technology. The Silcolloy 2000 coating process deposits a thin (580-2400 nm) layer of hydrogenated amorphous silicon that protects vacuum components from corrosive materials without affecting vacuum or pump down performance. See below for the current offerings from Kurt J. Lesker and SilcoTek.

Silcolloy 2000® Properties

Coating Composition:	Hydrogenated, amorphous silicon (a-Si:H)
Deposition Process:	Thermal chemical vapor deposition (not plasma-enhanced)
Maximum Temperature:*	800°C
Typical Thickness:	580 - 2400 nm
Hydrophobicity (contact angle):	≥ 40°
Allowable pH Exposure:	0 - 8

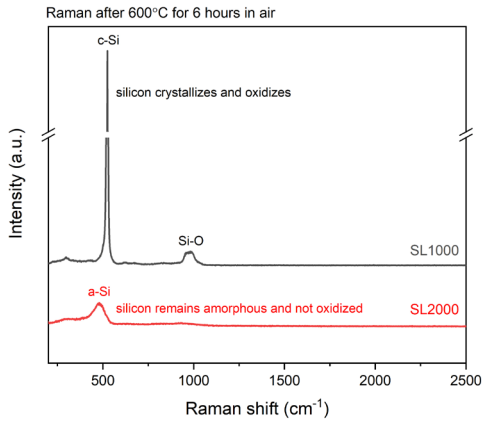
Silcolloy 2000 treated standard manufacture and custom vacuum parts will experience:

- Enhanced corrosion resistance
- Strong pump down performance
- High temperature compatibility
- Broad base material and vacuum component capability

Common component examples include: Vacuum flex hoses, KF, ISO, and CF flanges and components.

High Temperature Stability

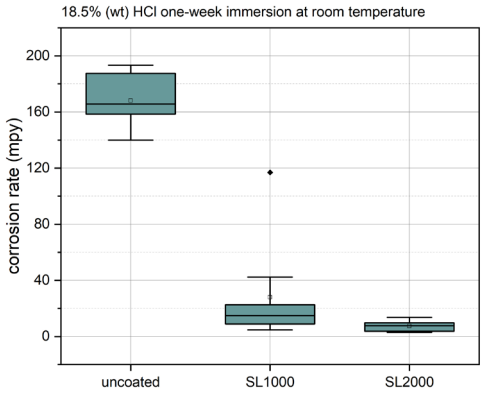
Silcolloy 2000 (SL2000) maintains its chemical composition and performance up to 800°C making it SilcoTek's best high temperature coating.



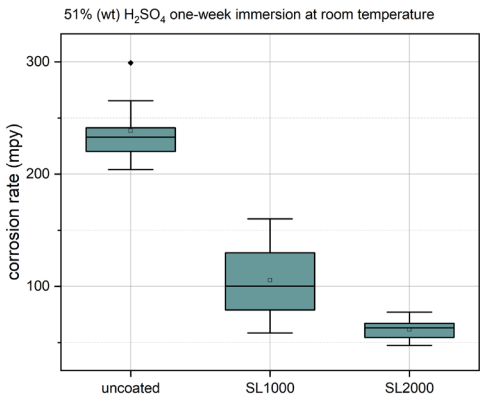
The improved Silcolloy 2000 process allows customers to experience high-temperature stability in their applications. The amorphous silicon layer avoids oxidation at high temperatures to improve and prolong performance.

Corrosion Resistance

Aggressive corrosive agents such as sulfuric acid and hydrochloric acid are no match for the excellent protective barrier provided by Silcolloy 2000.

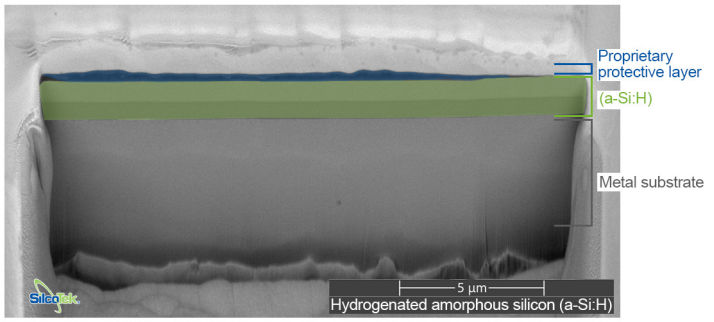


Silcolloy 2000 proves to be the updated standard for corrosion protection, outperforming uncoated stainless steel and its predecessor, Silcolloy 1000.



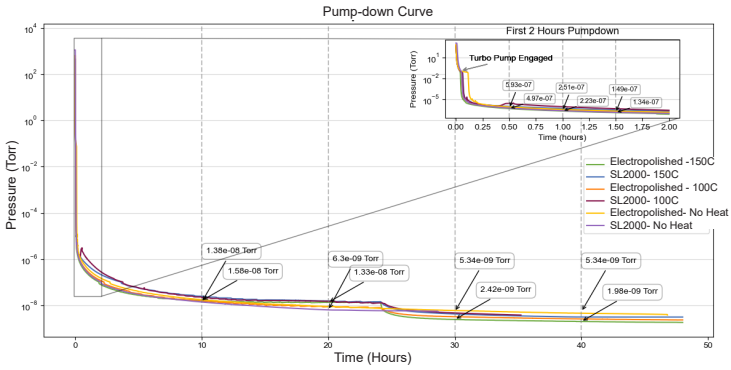
Uniform Deposition Layer

SEM images taken show the multi-layer hydrogenated amorphous silicon layer acting as a protective barrier for the metal substrate.

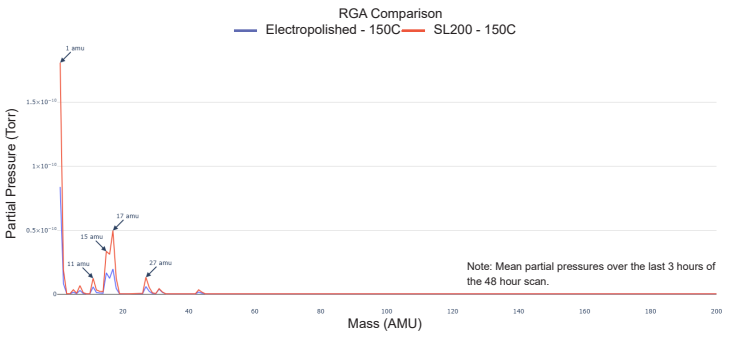


Maintain Vacuum Performance

Silcolloy 2000 (SL2000) offers excellent protective properties while maintaining the same vacuum performance and pump down times as uncoated or electropolished surfaces.



Pump down comparison at 150°C, 100°C, Room Temp. - 6"OD CF 304L SS Full nipple test piece coated with SL200 from SilcoTek and compared to uncoated electropolished equivalent. The coated sample enables similar pump down and ultimate vacuum performance to uncoated standards at various temperature levels.



RGA comparison at 150°C - No anomalous AMU points on coated samples compared to uncoated, typical expected peaks for H_2, H_20, N_2, etc. The difference in peaks between coated and uncoated samples is in the 10e-11 range indicating minimal outgassing differential.