



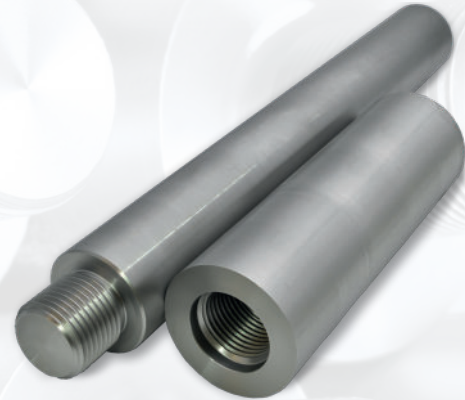
High Performance Solutions for the Glass Industry

qsil

A Leading Global Supplier to the Glass Industry

QSIL Metals understands glass melting, providing melting products and the need to provide products that perform well in hot molten glass, quartz melting and forming, and sputtered thin films for photovoltaic substrates. Our product solutions enable reduced contamination in the glass melt while yielding the highest glass purity.

QSIL Metals' technical experience benefit processes in melting, homogenizing, feeding, and shaping of glass products in gas and electric glass melting furnaces. Refractory materials like molybdenum are choice materials for their mechanical, electrical, process, corrosion, and cost conditions required for the glass melting process.



Glass Melting Electrodes (GME)

QSIL Metals supplies molybdenum glass melting electrodes with the highest standards for efficient glass melting and electric boosted melting. The high temperature strength and rigidity of molybdenum electrodes, plus the inherent electrical properties of molybdenum, provide maximum operating efficiency. The exceptional purity level of QSIL Metals' molybdenum electrodes, 99.95% minimum, achieves outstanding resistance to chemical corrosion, degradation and minimizes glass chemistry interactions.

QSIL Metals offers our high purity molybdenum (Mo) glass melting electrodes, available coated and uncoated with conventional threads. Converter electrodes are also available for changing between electrodes.

- > ***1.25" (32 mm) to 8" (203 mm) in diameter***
- > ***Custom fabricated top mounted electrodes and bi-metallic***
- > ***Machined or centerless ground surfaces for concentricity and straightness***

The Power of Innovation at QSIL Metals

As a worldwide leader in refractory metals, we have state-of-the-art laboratories to enhance our product's performance. By collaborating with our customers, QSIL Metals is creating the most innovative products with the best performance.

Glass Melting

- > Glass Melting Electrodes
- > Flow Orifices and Wear Parts
- > Oxidation Resistant Coatings
- > Stirrers

Quartz

- > Heat Shields
- > Heating Elements
- > Orifice Plates and Mandrels
- > Forming Tools

Photovoltaic

- > Molybdenum, Niobium, and their alloys
- > Planar Sputtering Targets

Oxidation Resistant Coatings

QSIL Metals is continually improving our coatings to provide molybdenum and other refractory metals with outstanding protection against oxidation at high temperatures.

Reliable and reproducible, these coatings protect against oxidation from air, oxygen-rich atmospheres, oxidizing chemicals and flames.

The coating is fully compatible with molybdenum and can be used for the coating of glass melting electrodes and other components for the glass industry, protecting them from oxidation during the critical start-up period of a furnace.

Our silica-based coatings have no coloration or other detrimental effects upon the glass. The ceramic coating is integral with and chemically bonded to the metal surface with no additional build up displaying a uniform smooth surface finish that does not separate or spall.

Being produced via a chemical vapor deposition (CVD) process, the coatings are uniform, thinner and equally applied to all surfaces including the inside of thin tubes.

Molybdenum and Tungsten Fabrications

QSIL Metals provides large diameter molybdenum and tungsten fabrications suitable for quartz melting vessels, orifice plates and mandrels for quartz melting and the production of quartz tubing.

In addition, we can manufacture fabrications from molybdenum sheet with forged molybdenum internals.

Gobbers and Stirrers

For homogenizing and feeding special glass melts, QSIL Metals offers a range of gobbers and stirrers that serve the thermal and chemical homogeneity requirements of glass melts. We manufacture glass stirrers from pure molybdenum or molybdenum tungsten alloys.

Sputtering Targets for Glass Coating and Photovoltaic

QSIL Metals also supplies molybdenum, niobium, and their alloys for thin film sputtering.

- > Planar Targets
- > Segmented or Single Piece Planar Targets

The conditions of your use and application of our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations, are beyond our control. Therefore, it is imperative that you test our products, technical assistance and information to determine to your own satisfaction whether they are suitable for your intended uses and applications. This application-specific analysis at least must include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by QSIL Metals Hermsdorf GmbH. All information is given without warranty or guarantee. It is expressly understood and agreed that the customer assumes and hereby expressly releases QSIL Metals Hermsdorf GmbH from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance and information. Any statement or recommendation not contained herein is unauthorized and shall not bind QSIL Metals Hermsdorf GmbH. Nothing herein shall be construed as a recommendation to use any product in conflict with patents covering any material or its use. No license is implied or in fact granted under the claims of any patent. Properties of the products referred to herein shall as general rule not be classed as information on the properties of the item for sale. In case of order please refer to issue number of the respective product data sheet. All deliveries are based on the latest issue of the product data sheet and the latest version of our General Conditions of Sale and Delivery. The values in this publication are typical values and do not constitute a specification.

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