

FABRICATED MICA

The term **FABRICATION** applies to various processes, such as cuttings, stamping and punching of natural sheet mica to a specified size, shape, thickness and design within close dimensional tolerances for electrical and electronic end-uses.



Natural mica being available only in flat sheets, fabrication of mica are performed on a production basis by using foot or power punch presses by the help of a compound die similar to those used in metal stampings. Where the quantities are not large enough to permit the cost of a die, mica may also be hand-sheared, drilled or lathe turned on any of the common tools used for machining metals. A template is used for accurate dimensional measurement. Machine speeds should be similar to those used for machining brass.

Normally, mica is fabricated with compound dies by foot or power punch process, especially if the finished piece contained perforation of any kind. A compound die punches the outside shape and all the inside holes with one stroke of the press most accurately.

A different die is required not only for each change in the pattern, but also for each change in thickness for precision work. The mica is fed to the press by hand. Mica pieces whether in the form of block, thins, or films, are usually calibrated to close range of thickness for precision punching, as it is an important variable in the process. An uniformly thick mica fed to a die improves the cutting quality of the die and produce parts having contour and holes. Mica films for capacitors are usually fabricated within a very close range of thickness tolerances.

PUNCHED PARTS

Mica punched parts are fully customized to given drawings in terms of quality, size, thickness and critical shapes and they are used in various applications including:

Capacitor Plates: Mica films of superior grade, split and gauged are used in the manufacture of silvered mica plates and mica capacitors.



Target and Mosaic Mica: Superior quality mica films, optically flat, free from scratches, finger prints and other imperfections, having uniform color are used as target and mosaic mica in image orthicons in telecasting industry.

Communication Devices: High quality muscovite discs and sheets coated with gold or silver patterns are used in communication devices as conductor support bar.

Marker Dials: Superior quality mica discs are used withstands sudden shocks, strains and vibrations, weathering effects and changes as marker dial for navigational compasses in ships, submarines and airplanes.

Sand Castings: Mica parts with multiple holes are used as strainers in metal sand castings. They act as a choked and strainer during pours and helps eliminate getting dross or contaminated.

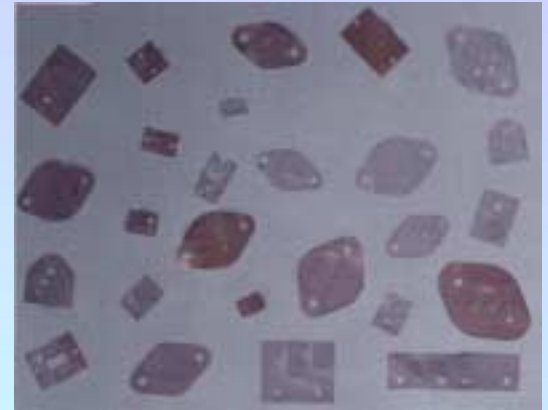
Diaphragms: Due to flatness and rigidity mica sheets, discs of superior quality are used as diaphragms for oxygen breathing equipment.

Microscope Research Mica

High Quality & scratch free Natural Mica is cut to fit microscope slides. This mica peels off very thin and uniform layers, exposing "virgin" mica upon each peeling.

Mica inserts are fully customized to given drawings in terms of quality, size, thickness and critical shapes and they are used in various applications including:

Jet Engines: These engines are put into motion by a magnet, which depends for efficient functioning on a support of a mica component.



Transistor and Semiconductor: Mica Parts are used as washers and supports for both electrical and heat insulation due to their excellent mechanical and thermal properties. Mica parts help the component by insulating from the chassis and to dissipate the heat away from the components & keeping them cool. Its added advantages are low moisture absorption, high breakdown voltage and high resistance to surface leakage.

Neon Lights: Mica is used as insulation in the glass cylinder enclosing the electrodes of Neon-light signs.

High Voltage Lamps Because of its excellent electrical, mechanical and thermal properties sheet mica of medium quality are used as supports of the leads to the intensely hot glowing tungsten filaments of high power GLS lamps. Mica permits the lamps to withstand vibration and shock during operation and prevent gassing in the operating environment of lamps.

Miscellaneous Uses: Lamps, Fuse Plugs, Electric Lamp Socket, Lighting Apparatus, Grid Rheostats, Insulating washers, Discs and terminal plates for incandescent lamps, Fuse plugs, Fuse boxes, Electric lamp sockets, Lightning arresters, Induction coils, Insulation for motor controls and other General electric insulation in devices.

WINDOW PLATES

Mica window plates are fully customized to given drawings in terms of quality, size, thickness and critical shapes and they are used in various applications including:



Microwave Tube Windows: Clear mica sheet, absolutely flat, free from scratches, fingerprints and partial layers are used as microwave tube windows. Mica serves as a transparent path for microwave transmission attenuators. The excellent mechanical strength of mica to withstand pressure up to 5000 PSI, and low power loss at ultra-high frequencies are some of the attributes which necessitates use of mica for this application. Besides, mica can readily be assembled to the metal by applying low temperature methods and still provide a vacuum tight seal.

Stove Windows: Mica is used as viewing windows for wood stoves and other fuel burning stoves. Mica is used as thermal shield for Anthracite gas or kerosene stove (Aladdin stove), Isinglass furnace peephole, heat screen, metallurgical furnace and kiln, canopy, shield, smoke helmet, gas analysis of polarized light, etc.

Radiation Insulation: Practically all the important properties of organic insulation are subject to drastic changes under irradiation. Natural mica, being a mineral and inorganic, undergoes far less drastic effects. Superior quality sheet mica is used as window covers in radiation pyrometers and thermal regulators.

Television: Optically transparent, scratch free sheet mica of superior quality is used as retardation plates of helium-neon lasers and iconoscope screens of televisions, as well as, reflectors and quarter wave plates in optical instruments.

PLATE & CARD

Mica plate and cards are fully customized to given drawings in terms of quality, size, thickness and critical shapes and they are used in various applications including:



Resistance and Potentiometer Cards:

Mica is flexible in thin sheets and could easily wound around and bent into a circle to a diameter as small as 1/8th inch without fracturing. At the same time it has high mechanical strength and ability to withstand high temperature at ease. As such medium quality thin mica sheets are used as a non-conductive resistance cards, as well as, potentiometer cards as a base material.

Electric Heating Appliances: The largest non-electronic use of muscovite sheet mica of lower qualities are in the manufacture of electric heating appliances requiring non-inflammability and dielectric resistance, such as: flat-irons, toasters kettles, percolators, griddles, boilers, water heaters, ovens, rice cookers, slow cookers, radiators, hair dryers, soldering irons, glue pots, lead melting vats and other heating appliances. The main function of mica for the above applications is to support and separate heating elements and nickel-chrome resistance wire.

Sound Device Plates: Resonance and elasticity of mica makes it a good sound producer, receiver and transmitter of sound waves and therefore, it is particularly suitable for acoustics apparatus used in submarines and airplanes as diaphragms for detecting sound. It is also employed in the manufacture of other sound producing and sound detecting devices, such as detonators, radiophone, gramophone, sound boxes, headphone, loudspeakers etc.

CRIMPED SHEET

Crimped Mica are prepared from mica films in specific size and thickness and passed through a specially designed rolling machine to form vertical, horizontal or diagonal corrugated ribs. The rollers are designed to perform crimping very smoothly to precise dimensions without pilling or cracking mica sheets.



Crimped fabricated mica becomes very soft and easily single directional roll able for use in wrap insulation, where natural MICA is critically required.

Primary and Secondary Insulation: Natural mica absorbs practically zero moisture. It can be cleaned readily, is incompressible and not subject to cold flow. It also has the ability to withstand arcing and corona without permanent injury. These characteristics combined make fabricated crimped mica parts highly suitable for use in electronic and electrical apparatus both as a primary and secondary insulation.

High Tension Coil for Radars: Mica wrappers in specified thickness are used for thermal insulation of high-tension radar coils.

Soldering Irons: Fabricated and or Crimped Mica film wrapped around the entire length of the flat part of the copper bit of a soldering iron eliminate physical contact between the resistance wire and the copper bit to avoid short circuit. Mica also ensures low resistance to heat transfer and high efficiency in the operation of the instrument thus.

SHIELD & GASKET

Mica Shields & Gaskets are made of the highest quality muscovite natural mica, cut and punched to accurate specified dimensions and thickness, having very high degree of thru vision transparency.



Suitable for:

- Water Level Gauges • Liquid Level Gauges • Columns of High Pressure Steam Boilers.

USED IN

Tanks and Vessels of all kinds • Oil Refineries • Petrochemical Plants • Organic / Inorganic Chemical Plants Oil Refineries • Fertilizer Plants • Nuclear Power Stations • Thermal Power Stations • Electricity Generating Stations.

Typical Properties

Guarantee a direct reading and clear observation of liquid levels and its characteristics — provide a perfect visual indication to watch the nature and degree of combustion in blast furnaces of high-pressure steam boilers.

Mica Shields **protect** the inner surfaces of the gauge glass against erosion by steam and other elements and from the corrosive chemical effects of alkaline solutions, water, caustics, hot concentrated phosphoric acids sodium and potassium and other media.

Mica Shields **eliminates** completely the risk of breakage, cracks, jerks, thermal shocks combustion effects or fuses when used at higher steam pressures and working temperatures.

Mica Shields **increases** the service life of the gauge glass by retaining its basic strength when used at higher pressures and is a must where pressures exceed 350 PSI (2400kpa) @ 431° F.