Global Power Partners LLC

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INSULATED BUSHINGS AND BUSBAR SYSTEMS

MGC MOSER-GLASER

The busbar product group comprises a program of fully insulated bus systems of up to 245 kV and 8kA. The **DURESCA** process is also considered to be a pioneer accomplishment in the field of solid insulation and is the product of 40 years of experience. Over the years, **DURESCA** has been adapted to the needs of modern energy technology. **DURESCA** solves space problems and is regarded as being especially safe and reliable. In 1990, the **GASLINK SF6** bus system was developed by MGC in collaboration with a major customer to meet market demands and was approved for the market as an auxiliary product to the proven **DURESCA** busbars. MGC offers extensive consultation for both systems, modern engineering and works testing. Assembly and start up, performed by MGC experts, is recommended. Products are manufactured by Moser-Glaser and sold by Global Power Partners LLC. Products and their applications include:

Duresca - 12kV to 170kV, and up to 8000A applications, insulated bus bar meant for switch-gear and transformer applications both indoor and outdoor. Ideally suited for climate challenged applications (marine or coastal systems, humid conditions, cold climates, or contaminated conditions). With full insulation and ground protection surface, the reliability and safety of the bus bar format is improved, along with the ability to decrease size of the installations. Also allows the high voltage bus to be taken through walls and other barriers where fully insulated bus would provide advantages-thus reducing installation expense by eliminating the expense of wall bushings or insulators. Many uses of the design found in the following applications - Generating Stations, Medium and High Voltage Substations, On Board Ship Electrical Systems.

Tiresca - 15kV to 34.5kV with rated currents from 400A to 8500A, for substation bus connections for transformers to switchgear, and switchgear to switchgear. Intended for busbar connections in distribution substations or generation stations for partially insulated bus-bar applications.

GasLink - Medium voltage applications to 40.5kV with up to 3150 Amperes with SF6 Gas to Air format allows easy interfacing with GIS applications and indoor air portions of application. Medium voltage applications for GIS switchgear and substations.

Duresca Condenser Wall Bushings
Up to 245kV fully insulated resin impregnated molded and silicone insulator Outdoor-Indoor bushings for applications for transformers, generation facilities, station-mounted transformers and switchgear.

Moser–Glaser in Basel Switzerland was founded in 1914. The business started off developing, producing and marketing small transformers. The gradual growth of electro–economics in the 1920's and 1930's was also accompanied by continuous progress in the construction of power and instrument transformers. A major break–through was achieved in the late 1940's when epoxy cast resins were first used as insulation material for medium voltage transformers. In 1958, MGC (Moser–Glaser AG) invented the RIP (Resin Impregnated Paper) technology; a process designed to insulate electrical conductors for bushings and busbars in middle and high voltage applications. The DURESCA® busbar technology, which emerged from this in the mid 1950's, meant an interested diversification for the company in the worldwide engineering and plant sector. MGC products and technologies traditionally feature high quality, progressive engineering and environmental compatibility. .

DURESCA

The Duresca Busbar System

The conductor is made up of a cylindrical aluminum tube of alloy type AC 041 or of an electrolytic copper rod. The insulation lies directly on the conductor and consists of wrapped paper dried under vacuum and impregnated with EPOXY resin, Conductive grading layers are embedded during the wrapping and insulation for the field control. The earth layer is entirely embedded in the insulation and provides a complete electrical screen.

On the whole length of the bar, the surface of the insulation is covered by a corrugated protection tube in synthetic material. This protection tube provides an effective barrier against moisture ingress Furthermore, the corrugation provides and increase of the creeping distance on the end of the bar.

The single bars are manufactured in lengths of 6 to10 meters (approx. 20 to 33 feet). For longer bus runs or by tight place connections where only short pieces can be installed, the single busbars are joined together on site The joints are flexible or rigid and are also electrically shielded by insulating cylinders The single bars are custom made and their installation consists mainly of the easy assembly of standard components.

Connection to GIS

The high current connection and the sealing flange are matched to the GIS connection and flange.

Connection to the Transformer

The connection to the transformer can be insulated or bare. For the fully-insulated connection, the transformer is equipped with an oil-oil bushing. The busbar to bushing connection is protected by an insulating cylinder. The bushing is custom designed to match with the transformer on one side and with the insulating cylinder on the other side. For this reason, it is advantageous that the bushings are provided by MGC. An open connection from the Duresca busbar terminal to the transformer bushing terminal is also available. The outdoor ends of the bars are protected by silicone rubber skirts similar to those of outdoor bushings.

Dimensional Tolerance of the Bar Length

The adjustment of the length occurs in the insulating cylinders through the use of flexible connectors.

Testing / Quality Assurance

Each single bar is subject to a routine test schedule which consists of: Measuring the capacitance, tan delta, partial discharges and at a minimum for 60Hz at 1.2 minutes (per IEC 60 137) withstand voltage test. Each GIS connection part is pressure tested to check its sealing properties.

Protection Class

Busbars IP 67. Cylinder and protection boxes IP 54 as standard IP 67 on request.

Features

- Solid, separately isolated phase bus, fully grounded for personnel safety.
- Safe service conditions, even in high ambient humidity.
- Partial discharge free operation.
- Compact dimensions, tight bend radii.
- Link between SF6 insulated and oil insulated equipment.
- Suitable for complete outdoor installation.
- Custom engineered for each individual installation.
- Operation by ambient temperature down to -40°C (upon request -50°C).
- No gas over pressure in the outdoor silicon rubber eliminates explosion danger.
- Ability to match with all types of GIS equipment.
- Factory tested.
- Easy installation.