

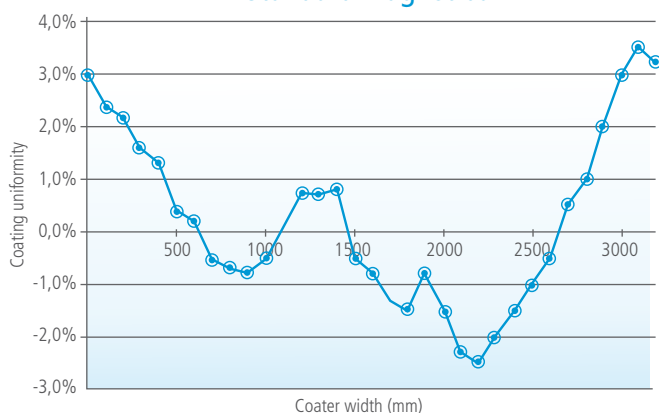
iOSMB Online Shimmable Magnet Bar



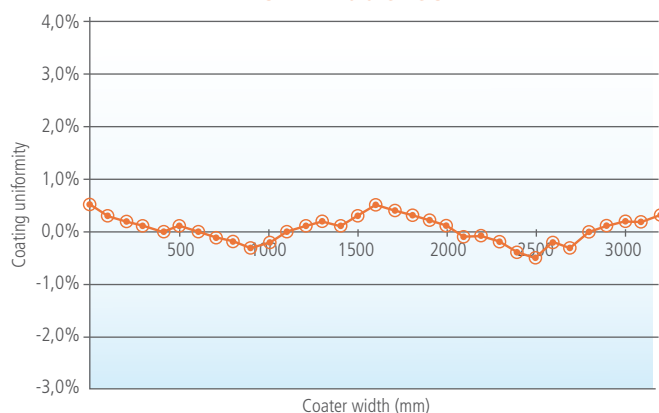
Applications requiring superior coating uniformity over large areas can benefit substantially from the use of AGC's Online Shimmable Magnet Bar (iOSMB) technology. The online shimmable magnet bar inside the rotatable cathode controls the magnetic field strength distribution in real time during the coating process. Changes to the magnetic field strength distribution are utilized to compensate non-uniformities in the profile of the deposited coating without the need to switch off the plasma or to vent the coater and interrupt the production process. By adopting iOSMB technology, non-uniformities can be limited to $\pm 0.3\%$ over the coating width for dielectric and metal layers.

The working principle of iOSMB technology, developed by AGC, is a magnet bar which consists of a series of individual magnets known as yokes. Each individual yoke has a length between 110 mm and 220 mm and can be positioned in height relative to the target surface with motors controlled by integrated electronics. The independent control of each individual yoke enables locally precise control of the magnetic field strength along the entire cathode length. This allows users unprecedented control of coating thickness uniformity on large area substrates and curved objects. The system is fully battery powered and therefore has no electrical connections to the exterior during the operation.

Standard magnet bar



Shimmable iOSMB



BENEFITS

- Reduces the tuning time for complex multi-stack coatings or coatings on complex parts like curved 2D or 3D objects.
- Allows the local adjustment of magnetic field during the production without the need to switch off the plasma or to vent the coater to adjust the deposition rate and correct for non-uniformities.
- An integrated tuning wizard shows the effects of changes to magnet yoke settings on resulting layer profile uniformity to guide the operator in making the right decisions. An easy-to-use graphical interface allows the operator to control the settings of the individual yokes of the iOSMB by graphical sliders.
- It is possible to transfer a magnetic field between different iOSMBs. This allows replacing magnet bars easily without changing the magnetic field strength distribution.

Technical Specifications

Length of individual yoke	Customizable between 110 mm and 220 mm
Stroke height adjustment allowance per yoke	Up to 15 mm
Precision individual yoke positioning	50 μ m
Magnet adjustment time	Typically < 20s
Lifetime	Battery lifetime between recharging up to 1 year (or 500 cycles of tuning) in typical operating conditions Can be extended on demand Magnets are operated in fully dry atmosphere without direct water contact. No risk for corrosion
Data logging	Logging of operational data of the iOSMB allowing historical data analysis and quick troubleshooting
Compatibility target tube diameter	Versions available compatible with 133 mm and 160 mm diameter backing tubes / end blocks

AGC Plasma Technology Solutions is the industrial coatings unit of the world's largest glass producer AGC Inc. (Asahi Glass Company) and a one-stop provider for plasma-based vacuum coating equipment. The group leverages decades of thin-film coating experience on large area glass products to innovate and develop new industrial solutions from proof-of-concept to mass production. AGC Plasma Technology Solutions operates R&D and production facilities across the US, EU, and APAC.

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