CGS technology is unique technology for thin and thick layers deposition. Over last 10 years, Safina a.s. has developed processes using CGS to produce rotary sputtering targets, which are more than 13ft long with silver thickness around 1 inch throughout the length as well as powders for thin layer applications. Special silver tube is being used for PVD process and special flat and industrial glass production, called Jumbo sputtering target. The main reason to use CGS technology for production of jumbo Ag tubes is the fact, that traditional casting process would be very challenging and expensive. On the other hand, traditional spraying technique does not bring as high homogeneity of grain microstructure and low oxygen content as during CGS process. And that is the crucial requirement when vapor depositing on flat glass.

Critical attributes for mastering of this process is not only CGS equipment and its parameters setting, but also high quality and flowable powder used during spraying process, then final bonding on tube is perfect. Specially developed alloys and from those alloys or metals produced powders must be strictly controlled during production in order to achieve repeatability and reproducibility of the whole process. It is not only the atomisation of the powder, but subsequent sieving and classification, including proper packing before use of the powder. During presentation Safina will introduce the advantages and comparison of CGS to others, different flame spray technologies, will explain bonding issues during the process as well as grain structure of final product achieved if using the right parameters of CGS equipment in combination with various gas atomised metal powders.

Bio

**Ing. Aleš Herrmann, MSc.**
Chief Business Development Officer in Safina a.s.

More than 10 years of experience in different industries from traditional metal cutting to additive manufacturing. Lately stressing on AM manufacturing, CGS technology, metal powder production and management and business development in connected fields.

**Ing. Michal Brezovan**
Development engineer

Is leading person in development gas atomized powder for AM and cold gas spray application. Holds master's degree in manufacturing and materials engineering from Czech Technical University in Prague in the department of mechanical engineering. He is an expert in metal powder processing and metal surface technologies/finishes. He also finished e.g. the 4th cold gas spray summer school in Barcelona (2017) and training in the Netzsch's fine powder processing and measurement in Hanau (2016).