A002-FLOW CONTROL VOOR GLASCOATING PROCES

APPLICATION NOTE A002-ST04

FLOW CONTROL FOR GLASS COATING PROCESS

Glass coatings are made for modifying optical properties of glass, to improve solar transmission characteristics or just for changing its aesthetic appearance. Whether for solar and energetic control or architectural purposes only, glass coating is a very demanding process.

For attaining thin-film coatings compliant with the highest quality standards the process gas system must be capable of providing superior layer uniformities. Easy maintenance is also a major concern when large area coaters are involved. Bronkhorst fully understands the Glass Coating Industry's demands and has therefore developed sophisticated solutions specially addressed to meet the demands of state of the art large area glass coating applications.



Application requirements

Superior layer uniformity, high yields and reduced cost of ownership are among the demands of the Glass Coating Industry. By controlling individually process gas segments, film thickness uniformity improvements are achieved. Additionally, if the control is made by instruments capable of securing a stable flow profile, reproducibility and fast response time, optimal performance can be reached. In order to reduce the cost of ownership, instruments must be reliable and endure working 24 hours a day, 7 days a week.

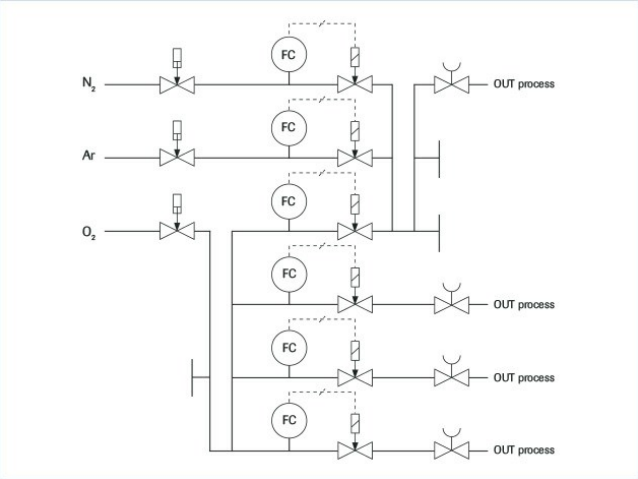
Important topics

- Repeatability
- Response time
- Reliability
- Space saving (compact)

Process solution

Securing uniform layers through precise gas delivery Sputtering is a physical vapour deposition (PVD) process which involves bombarding the surface of the coating material (target) with gas ions under high voltage acceleration, in order to promote the ejection of atoms from the target. The ejected atoms will be propelled towards the substrate, forming a thin-film coating over its surface. Plasma Enhanced PVD, like magnetron sputtering, is considered to be the most efficient technology. For this process an inert gas is required: Argon is the most commonly used, however some sputtering processes may involve oxide or nitride film coatings; if so O_2 and/or N_2 are added to the inert sputtering gas. According to its nature, the process requires low pressures nevertheless the process gas flow must be sufficient for allowing the ionic bombardment process to take place, otherwise it becomes impossible to maintain the plasma. Hence, the process gas flow must be meticulously controlled, if not, the quality and optimal homogeneity of the coating may be severely compromised.

Due to its unique proportional electromagnetic control valve, Bronkhorst mass flow controllers are ideal for this application. The instruments allow simultaneously an extremely fast and smooth control, providing excellent stability and repeatability.



Flow scheme

Recommended Products



EL-FLOW SELECT F-201CV

Min. flow 0,16…8 mln/min
Max. flow 0,5…25 ln/min

Drukklasse 64 bar

Compact design

Hoge nauwkeurigheid en herhaalbaarheid



FLOW-SMS

Compact assembly ensures space efficiency

Tubeless construction reduces potential leak points

Wilt u meer informatie over flowmeters of -regelaars?

Wilt u het laatste nieuws ontvangen over trends in flow control? Schrijf u in voor onze maandelijkse nieuwsbrief.

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