


# Thin Film Deposition

## Optical Coatings

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<b>Material class:</b>	Silicon X	Polymer	Metal	Ceramic X	Glass	Organic	Other
<b>Short technology description:</b>	<p>At MiPlaza optical coatings are sputtered in a sputtering machine named Radiance, manufactured by Evatec. It is a sputtering down system with four 200mm rotating magnetron targets powered with pulsed DC. The materials used are SiO<sub>2</sub>, Ta<sub>2</sub>O<sub>5</sub> and AlN. TiO<sub>2</sub> and Al<sub>2</sub>O<sub>3</sub> are under development. All materials are sputtered from metallic targets in an oxidizing or nitriding atmosphere. It is possible to load ten substrate holders, maximum substrate size 150x8 mm. An ion gun is installed to clean substrates or to oxidize and densify the layers. Substrates can be heated to 250°C. During deposition thickness is in situ controlled by an optical broadband monitor.</p> <p>Coatings may range from simple two- layer) anti reflection coatings for laser purposes to complex optical band-pass filters with multi-layer stack containing more than 20 individual layers.</p> <div data-bbox="427 875 1422 1335" data-label="Figure"> </div>						
<b>Typical structures and designs:</b>			<p><b>Optical stack design is very much dependent on the specification. This is always to be discussed with the technical contact, who will help with design and realisation.</b></p> <p>The Complete solution: Coating platform, optical monitoring and software all from one supplier. Proprietary Evantec strategy generator software helps you choose the best algorithm for end point determination in each layer of the process.</p>				
<b>Special features:</b>	<ul style="list-style-type: none"> <li>- Ion beam for layer densification</li> <li>- Possibility for oxides and nitrides</li> <li>- In-situ control of layer growth by reflectance measurement</li> <li>- Excellent adhesion</li> </ul>						
<b>Material examples:</b>	<ul style="list-style-type: none"> <li>- SiO<sub>2</sub>, Ta<sub>2</sub>O<sub>5</sub> and AlN</li> <li>- TiO<sub>2</sub> and Al<sub>2</sub>O<sub>3</sub> are under development</li> </ul>						
<b>Material examples:</b>	<ul style="list-style-type: none"> <li>- Pt, Au</li> </ul>						