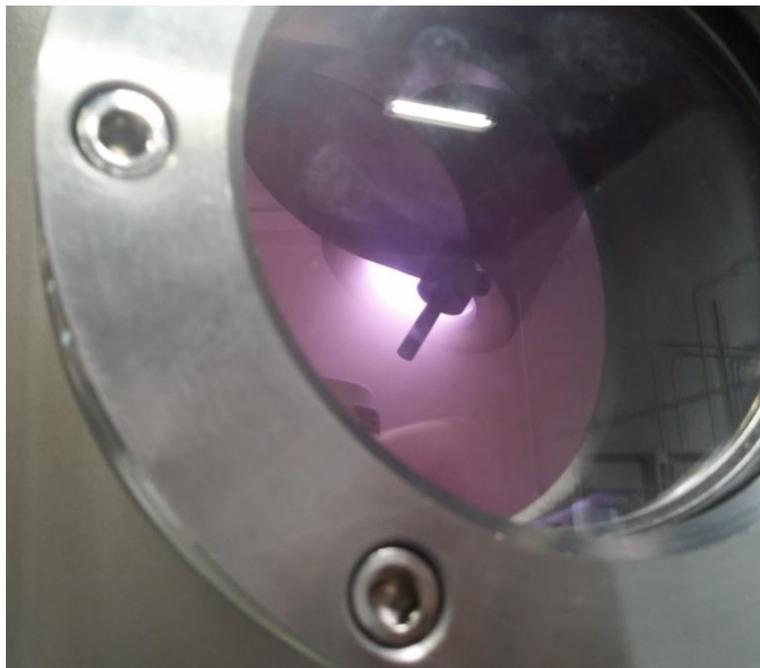


DC / RF Magnetron Sputtering with MTI [VTC-600-2HD](#)

Test #	Target	Gas / Flow Rate	Base Pressure	Sputter Pressure	Sputter Power	Power Ramp Rate
1	2" Al	Ar / 20 mL/min	3.0 E-5 Torr	5.0 E-3 Torr	DC 100 W	1 W/s
2	2" SiO2 (w/ backing plate)	Ar / 20 mL/min	3.0 E-5 Torr	5.0 E-3 Torr	RF 50 W	0.3 W/s

Test #	Target	Sample Rotation	Temperature	Pre-Sputtering	Sputter Time
1	2" Al	20 rpm	20 °C	2 min	10 min
2	2" SiO2 (w/ backing plate)	20 rpm	20 °C	2 min	10 min



Purple Halo of Ar Plasma in [VTC-600-2HD](#)

❖ Useful Tips for Improving Sputtering Results

1. Keep the sputtering chamber and heads clean at all times. Wear lint-free gloves during operation
2. Isopropyl alcohol (IPA) is preferred for cleaning metal surfaces (including targets) as acetone takes longer to outgas and could reduce vacuum performance
3. Always isolate the rough vacuum pump from the chamber to prevent the backflow of pump oil (hydrocarbons) into the chamber. This is usually achieved by shutting off the valve between the chamber and the pump
4. Coating uniformity can be improved by using high purity gas and targets. Ideally, the targets should be at least 20% larger in diameter than the substrates for good uniformity
5. For best performance, the non-conductive targets must be installed with a copper backing plate
6. To remove the surface oxide on metallic target prior to DC sputtering, use high grit sandpaper to gently polish the target surface, and wipe it clean with lint-free cloth wetted with isopropyl alcohol
7. To improve film adhesion strength, please clean the substrate surface before coating:
 - Ultrasonic cleaning with the following sequential baths - (1) acetone, (2) isopropyl alcohol - to remove oil and grease. Blow dry the substrate with N₂, then hot bake in vacuum to remove absorbed moisture
 - Plasma cleaning may be needed for surface roughening, surface chemical bonds activation, or additional contamination removal
 - Thin adhesion layer (~5 nm), such as Cr, Mo, Ta, could be applied to promote adhesion of metals and alloys