

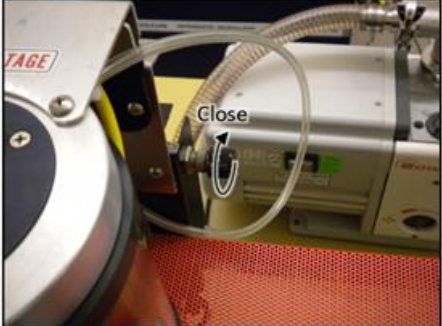





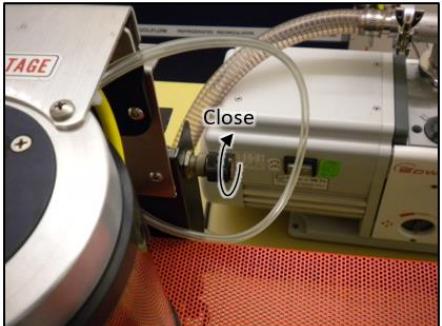


Number: 03**WORK INSTRUCTION BREAKDOWN SHEET**Operation: Sputter Coater **Startup/Shutdown**

Instrument: Technics Hummer VI Sputter Coater

IMPORTANT STEPS	KEY POINTS	REASONS WHY
A logical segment of the operation when something happens to advance the work.	Anything in a step that might: <ol style="list-style-type: none"> 1. Make or break the job 2. Injure the worker 3. Be a Cultural Consideration 4. Make the work easier to do (i.e., “knack”, “trick”, special timing, or bit of special information). 	Reasons for each key point.
Perform “Sputter Coater Sample Preparation” Work Instructions (See Number: <u> </u>)		
PRE-STARTUP EQUIPMENT and INSTRUMENT CHECK		
<ul style="list-style-type: none"> • Put on clean disposable gloves. • Make sure appropriate Target is secured to underside of Top Plate. • After checking Target, gently lower Top Plate to rest on top of Glass Vacuum Deposition Chamber (hereafter referred to as “Chamber”). 	<ul style="list-style-type: none"> • NOTE: <u>always</u> wear clean disposable gloves whenever touching or handling Target. • Gently raise Top Plate and rest in upright position. • Target is the metal ring located between the thin vertical Top Plate wall and magnetic ring. • Gently lower Top Plate to rest on top of glass Chamber. • If Target is not present or needs to be changed, notify NanoLab Supervisor. 	<ul style="list-style-type: none"> • Wearing gloves minimizes contamination. • Typical Target type is gold (Au) or gold/palladium (Au/Pd). • Image shows Gold (Au) Target secured to underside of upright Top Plate. 
Make sure Hummer VI instrument switches and dials are in correct position.	<ul style="list-style-type: none"> • Power Switch is set to “off”. • High Voltage Control dial is set to zero voltage and switch is set to “off”. • Process Select Mode dial is set to “Plate D/C” and Pulse switch is set to “off”. • Timer switch is set to “Auto” and dial is set to zero minutes. • Vacuum Gauge needle is all the way to the right at or past the “ATM” millitorr position. • Plasma Discharge Current needle is all the way to the left at zero AC milliamperes. 	

Make sure Regulator Valve is closed.	<ul style="list-style-type: none"> • Turn left-most thin black knob clockwise to close. • Note: <u>do not overtighten.</u> 	
Make sure <i>Fine Gas Control Valve</i> on sputter coater is closed.	<ul style="list-style-type: none"> • Turn knob clockwise away from Operator to close. • Note: <u>do not overtighten.</u> 	
STARTUP - Prepare Argon Gas Supply		
Open the <i>Argon Gas Tank Valve</i> .	<ul style="list-style-type: none"> • Turn metallic valve handle counter-clockwise to completely open the valve. • Valve is completely open once Operator encounters resistance while opening. • DO NOT FORCE valve past completely open. 	
Check the <i>Argon Gas Pressure Gauge</i> .	<ul style="list-style-type: none"> • Right (tank) gauge indicates how much gas is in the tank. • A full tank of argon gas may indicate as high as 3,000 psi, but any value greater than 200 psi is acceptable for use. • Notify NanoLab Supervisor if gauge indicates less than 400 psi. 	

¹ Adapted from Graupp, P. & Wrona, R. (2006) The TWI Workbook: Essential Skills for Supervisors. New York, NY. Productivity Press.

<p>Open the Regulator Valve and check its pressure gauge.</p>	<ul style="list-style-type: none"> • Turn left-most thin black knob counter-clockwise until loose. • Valve is completely open once Operator encounters resistance while opening. • DO NOT FORCE valve past completely open. • Left (regulator) gauge indicates pressure through regulator to sputter coater; should register approximately 10 psi (± 5 psi). • NOTE: Notify NanoLab Supervisor if gauge indicates greater than 15 psi or less than 5 psi after opening. 	
<p>Proceed to “Sputter Coater Operations” Work Instructions (See Number: ____)</p>		
<p>SHUT DOWN – Close-off Argon Gas Supply</p>		
<p>Close the Fine Gas Control Valve on sputter coater.</p>	<ul style="list-style-type: none"> • Turn knob clockwise away from Operator to close. • Note: do not overtighten. 	<p>Overtightening may loosen or damage the knob and/or valve.</p> 
<p>Close the Regulator Valve.</p>	<ul style="list-style-type: none"> • Turn left-most thin black knob clockwise to close. • Note: do not overtighten. • Regulator Pressure Gauge will still indicate pressure after closing valve; this is normal behavior and pressure will decrease very slowly. 	
<p>Close the Argon Gas Tank Valve.</p>	<ul style="list-style-type: none"> • Turn metallic valve handle clockwise to close the valve. • Note: do not overtighten. • Argon Gas Pressure Gauge will still indicate pressure after closing; this is normal behavior and pressure will decrease very slowly. 	
<p>Remove disposable gloves.</p>		

¹ Adapted from Graupp, P. & Wrona, R. (2006) The TWI Workbook: Essential Skills for Supervisors. New York, NY. Productivity Press.