

VACUUM CHAMBER PM TECHNIQUE

200 MM AMAT HDP CHAMBER SCRUB

OBJECTIVE:

TO PM THE 200 MM AMAT HDP CHAMBER IN AN EFFECTIVE AND TIMELY MANNER, WHILE IMPROVING TOOL RECOVERY AND PARTICLE PERFORMANCE

<u>Vacuum Chamber:</u>	200 MM AMAT HDP DOME
<u>Vacuum Chamber Process Residue:</u>	FILM FROM HDP/CVD RESIDUE
<u>Vacuum Chamber Components:</u>	CHAMBER WALLS

<u>Solvent:</u>	DI water
<u>Old Procedure:</u>	Scotch-Brite™* with DI water
<u>New Procedure:</u>	Foamtec Products, DI water & Final Wipe – MiraWIPE® W/IPA (DI water optional)

Vacuum Chamber Products:

- (1) [HT4754](#) UltraSOLV® Sponge
- (1) [HT4536D](#)-10-1 360 Grit Diamond ScrubPAD
- (1) [HT4513PD](#)-10-1 1350 Grit Diamond ScrubPAD
- (1) [HT5790S](#)-25 MiraWIPES®



NOTE: FIRST CLEAN MAY REQUIRE THE USE OF MORE PRODUCTS DUE TO THE CURRENT CONDITION OF THE HDP CHAMBER

200 MM AMAT HDP CHAMBER PM PROCEDURE:

- Step 1:** Using all **safety procedures and guidelines**, prepare AMAT 5200 Centura®* HDP Tool for chamber scrub
- Step 2:** Properly stage Foamtec Products for chamber scrub with HazMat bag readily available
- Step 3:** Moisten the [HT4754](#) UltraSOLV® Sponge with DI water and proceed to wipe out entire chamber. This will remove any flakes or loose deposition from chamber surface
- Step 4:** Moisten the [HT4536D](#) 360 Grit Diamond ScrubPAD with DI water and proceed to scrub a 6" X 6" area within the HDP chamber surface
- Step 5:** Moisten the [HT4754](#) UltraSOLV® Sponge with DI water and wipe-out the deposition from the area scrubbed in "step 4"
- Step 6:** Unload the 360 Grit Diamond ScrubPAD as needed by wiping onto the [HT4754](#) UltraSOLV® Sponge in ONE direction (See Fig 1, 2 & 3)



Fig 1: ScrubPAD loaded with deposition

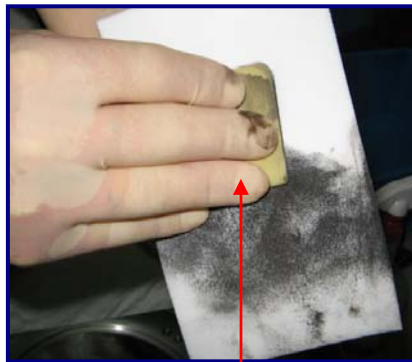


Fig 2: Pull ScrubPAD across UltraSOLV® Sponge



Fig 3: Unloaded ScrubPAD

200 MM AMAT HDP CHAMBER PM PROCEDURE (CONT'D):

Step 7: Return [HT4754](#) UltraSOLV[®] Sponge to container of DI water and re-moisten the 360 Grit Diamond ScrubPAD with DI water. Diamond ScrubPAD and UltraSOLV[®] Sponge will remain in good condition throughout entire clean (See Fig 4 & 5)



Fig 4: Loaded-up UltraSOLV[®] Sponge



Fig 5: UltraSOLV[®] Sponge AFTER rinse

Step 8: Repeat steps 4 through 7 until entire chamber has been effectively cleaned. 360 Grit Diamond ScrubPAD will be **more effective** if kept slightly moist with DI water

Step 9: When entire chamber scrub is completed with 360 Grit Diamond ScrubPAD, moisten 1350 Grit Diamond ScrubPAD

Step 10: Perform a Final Chamber Polish using the 1350 Grit Diamond ScrubPAD in the same manner as the 360 Grit Diamond ScrubPAD was used

NOTE: Ensure to keep the 1350 Diamond ScrubPAD slightly moist and continue to effectively wipe all parts of the chamber with the [HT4754](#) UltraSOLV[®] Sponge during the Final Polish

Step 11: After all areas within the chamber are effectively polished take a freshly rinsed out [HT4754](#) UltraSOLV[®] Sponge and wipe-out chamber again preparing for FINAL WIPE PROCEDURE

200 MM AMAT HDP CHAMBER PM PROCEDURE (CONT'D):

FINAL WIPE PROCEDURE:

IMPORTANT NOTE

THE USE OF HT5790S MiraWIPES® DURING FINAL WIPE PORTION OF PROCEDURE IS A CRITICAL STEP TO EFFECTIVELY REMOVING PARTICLE DEFECTS FROM AMAT HDP CHAMBER

NOTE: Figure below shows how much more deposition the Foamtec International MiraWIPE® can remove from a critical surface compared to the standard fab wiper, making the MiraWIPE® FINAL WIPE PROCEDURE the most **CRITICAL STEP** of the PM procedure (See Fig 6a & 6b)

Fig 6a: Current fab wiper after completely wiping the AMAT HDP Chamber



Fig 6b: Particles picked up using HT5790S MiraWIPES® after completely wiping with current fab wiper

MiraWIPES® are the KEY STEP for DEFECT REDUCTION and IMPROVED TOOL RECOVERY

Step 12: Using 100% IPA (DI water optional), dampen the HT5790S MiraWIPES® and perform a **THOROUGH AND EFFECTIVELY WIPEDOWN** of the HDP Chamber

Step 13: Ensure to wipe down all o-ring grooves, pump ports, slit valves and spare parts placed back into the HDP Chamber using additional HT5790S MiraWIPES®