**VACUUM CHAMBER PM TECHNIQUE**

**AMAT HIGH CURRENT IMPLANT DECEL COLUMN**

**OBJECTIVE:**
TO EFFECTIVELY PM THE APPLIED MATERIALS HIGH CURRENT IMPLANT DECEL COLUMN IN A TIMELY MANNER, WHILE IMPROVING TOOL RECOVERY AND PARTICLE PERFORMANCE

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**Old Procedure:**
2+ hours using ScotchBrite®, DI water, 100+ wipes

**Recovery time:** 4 to 6 Hours

**New Procedure:**
45 minutes using Foamtec International's products with DI water

**Recovery time:** 1 to 2 Hours

**Vacuum Chamber Products:**

- High Current Implant Decel PM Kit
- PM Kit P/N: **HT4500 - DECL PM KIT**
  - (1) **HT4754** UltraSOLV® Sponge
  - (1) **HT4528DC3-1** 280 Grit Diamond ScrubDISK®
  - (1) **HT4536D-10-1** 360 Grit Diamond ScrubPAD
  - (1) **FT901** ErgoSCRUB® w/hook
  - (1) **HT1790-5** UltraSOLV® Foam Swab
  - (5) **HT4790-5** UltraSOLV® Foam Wipers
  - (1) **HT5790S**-25 MiraWIPES®
AMAT HIGH CURRENT IMPLANT DECEL COLUMN PM PROCEDURE:


**Step 1:** Using proper procedures and **safety guidelines** prepare AMAT High Current Decel Column for wet clean.

**Step 2:** Stage a small container of DI water inside a large plastic bag next to AMAT Decel Column.

**Step 3:** Attach HT4528DC3-1, 280 Grit Diamond ScrubDISK® onto FT901 Soft ErgoSCRUB®.

**Step 4:** Place HT4754 UltraSOLV® Sponge, ErgoSCRUB® w/ScrubDISK® and ScrubPAD in container of DI water to moisten products. (See Fig 1)

**Step 5:** Take dampened UltraSOLV® Sponge and pre-wipe decel column, removing any loose deposition or flakes. Continue to re-moisten the UltraSOLV® Sponge in container of DI water as necessary.

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**Fig 1:** Foamtec International products in small container of DI water.

**Fig 2:** Foamtec International UltraSOLV® Sponge pre-wiping decel column.
**AMAT High Current Implant Decel Column PM Procedure (cont’d):**

**Step 6:** Take dampened 280 Grit Diamond ScrubDISK® attached to ErgoSCRUB® and scrub decel column within high current implanter. (See Fig 3)

![Image](Fig 3: ErgoSCRUB® w/280 Grit Diamond ScrubDISK® scrubbing decel column)

**Step 7:** As loose deposition begins to build up within the decel column, take UltraSOLV® Sponge and wipe the area free of deposition. (See Fig 4 & 5)

![Image](Fig 4: UltraSOLV® Sponge used to wipe out loosened deposition)

![Image](Fig 5: UltraSOLV® Sponge wiped away loosened deposition)

**Step 8:** Continue to rinse out sponge in container of DI water as necessary to free UltraSOLV® Sponge of excess deposition.
Step 9: As ScrubDISK® loads up with deposition, pull & twist ScrubDISK® across dampened UltraSOLV® Sponge to unload ScrubDISK®. (See Fig 6, 7 & 8)

Step 10: As UltraSOLV® Sponge becomes loaded with deposition, rinse in container of DI water. (See Fig 9 & 10)

Step 11: Repeat steps 6 - 10, scrubbing the remaining areas of the decel column as much as possible. Rinse out UltraSOLV® Sponge and unload 280 Grit Diamond ScrubDISK® as necessary.
AMAT HIGH CURRENT IMPLANT DECEL COLUMN PM PROCEDURE (CONT’D):

Step 12: Moisten the 360 Grit Diamond ScrubPAD in container of DI water and re-scrub all areas of the decel column using the same technique described above (UNLOAD ScrubPAD AS NECESSARY), concentrating on the areas of heavier deposition buildup and hard to reach areas throughout the decel column. (See Fig 11)

Step 13: When deposition has been removed sufficiently throughout entire decel column, rinse out UltraSOLV® Sponge with fresh DI water and re-wipe the entire decel column in preparation for FINAL WIPE PROCEDURE. (See Fig 12 & 13)
AMAT HIGH CURRENT IMPLANT DECEL COLUMN PM PROCEDURE (CONT’D):

FINAL WIPE PROCEDURE:

IMPORTANT NOTE

THE USE OF HT5790S MiraWIPE® DURING THE FINAL WIPE PROCEDURE IS A CRITICAL STEP TO EFFECTIVELY REMOVE PARTICLE DEFECTS FROM IMPLANT DECEL COLUMN

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 14a & 14b)

Fig 14a: Current fab wiper after completely wiping chamber

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

Fig 14b: Particles picked up using HT5790S MiraWIPE® after completely wiping with current fab wiper

Step 14: Fold an UltraSOLV® Foam Wiper into quarters, apply IPA to one side and pull the Foam Wiper across one entire section of ceramic decel column. (See Fig 15)

Fig 15: UltraSOLV® Foam Wiper folded in ¼’s with IPA
AMAT HIGH CURRENT IMPLANT DECEL COLUMN PM PROCEDURE (CONT’D):

Step 15: Continue the same technique using a new section of the UltraSOLV® Foam Wiper for each wipe across the decel column. Refold wiper and replace wiper as necessary.

Step 16: When the entire ceramic decel column has been wiped with UltraSOLV® Foam Wiper, dampen the HT5790S MiraWIPES® with IPA and perform a THOROUGH AND EFFECTIVE FINAL WIPE-DOWN of the entire decel column, concentrating on the metal areas not wiped with the UltraSOLV® Foam Wiper.

Step 17: Use HT1790 UltraSOLV® Foam Swabs, dampened with IPA, and swab out all the tight areas that were not reached with the HT5790S MiraWIPES®. This is very critical as you will need to reach all areas not normally wiped with a standard fab wiper.

Step 18: Prior to closing the chamber, take the remaining MiraWIPES® dampened with IPA, and re-wipe all areas within the process chamber and any parts that need to be returned to the chamber.

WASTE ACCUMULATED