

TSRI 微縮光阻處理系統

CLEAN TRACK ACT™ 8Z

作業人員安全與操作注意事項

Operator Safety and Operating Precautions

For Authorized External Users | 適用於經授權之外部使用者

中文 | 本文件說明 CLEAN TRACK ACT™ 8Z 一般作業人員於上機前、運轉中及異常情況下應遵守的基本安全與操作規範。所有操作應依設備現場標示、核准之製程條件及安全規範執行。

English | This guide summarizes the essential safety and operating requirements for authorized operators before, during, and after use of the CLEAN TRACK ACT™ 8Z system. All operation shall follow posted equipment status, approved process conditions, and applicable safety requirements.

安全重點一覽 | Safety at a Glance

中文		English
01	權限 僅執行經授權的標準操作。	Authorization Perform only authorized standard operations.
02	上機檢查 確認設備 Ready、晶圓完整、配方與 Lot 正確。	Pre-check Confirm Ready status, wafer condition, recipe, and lot information.
03	特殊材料 特殊規格材料片須先經設備工程師確認同意。	Special Materials Special-specification substrates require prior engineer approval.
04	PPE 依無塵室與化學品規範穿戴適當防護。	PPE Wear PPE required by cleanroom and chemical safety rules.
05	緊急處置 EMO 僅限緊急狀況；異常立即通報。	Emergency Use EMO only for emergencies; report abnormalities promptly.

中文

English

06

設備保護

禁止碰觸運動機構、強行取片或破壞

Interlock。

Equipment Safety

Do not reach into moving areas, force wafer removal, or bypass interlocks.

1. 作業權限與資格限制

User Level & Authorization

中文	English
1. 操作員僅可執行經授權之標準晶圓處理作業，包括選擇/登錄 Wafer Flow Recipe、確認 Lot 資訊，以及依規範放置與取出 Cassette。	1. Operators may perform only authorized standard wafer-processing tasks, including selecting/registering the Wafer Flow Recipe, confirming lot information, and loading/unloading cassettes according to approved procedures.
2. 未經授權不得執行設備啟動/關機、拆卸外蓋、進入維護模式、解除安全互鎖、化學品更換、手動機構調整或 EMO 後復歸等作業。	2. Unauthorized personnel shall not perform equipment start-up/shutdown, remove covers, enter maintenance mode, bypass safety interlocks, replace chemicals, manually adjust mechanisms, or conduct post-EMO recovery.

2. 上機前 60 秒檢查

Pre-operation Checklist

中文	English
1. 確認設備狀況牌為 RUN/正常使用；設備若標示 DOWN、MAINTENANCE 或維修中，不得上片。	1. Confirm the equipment status is RUN/available. Do not load wafers when the system is marked DOWN, MAINTENANCE, or under service.
2. 確認主操作畫面為 Ready，且無尚未處理之紅色 Alarm。	2. Confirm that the main screen shows Ready and that no unresolved red alarms are present.
3. 確認晶圓無破裂、明顯缺角、斜插或疊片，並確認晶背潔淨。	3. Verify that wafers are free from cracks, significant edge damage, tilted insertion, or double loading, and that the wafer backside is clean.
4. 確認 COT 與 DEV 指定治具分開使用，並再次核對 Wafer Flow Recipe、Lot、晶圓尺寸及製程內容。	4. Confirm that designated COT and DEV fixtures are used separately, and recheck the Wafer Flow Recipe, lot information, wafer size, and process details.

3. 特殊規格材料片與非標準基板

Special-Specification Materials & Non-standard Substrates

中文	English
1. 特殊規格材料片、非標準尺寸/厚度/材質之基板，或與一般晶圓搬送條件不同之樣品，必須於上機前先由設備工程師確認並同意後，方可進入機台。	1. Special-specification materials, substrates with non-standard size/thickness/material, or samples requiring handling conditions different from standard wafers must be reviewed and approved by the equipment engineer before they are introduced into the system.
2. 未經確認或核准之特殊材料片不得自行投入設備，以避免搬送異常、破片、污染或設備損傷。	2. Unreviewed or unapproved special materials shall not be loaded into the equipment in order to prevent handling errors, breakage, contamination, or equipment damage.
3. 如材料具有透明、脆性、翹曲、特殊表面、特殊背面、非標準邊緣或其他可能影響真空吸附/感測/搬送之特性，應於使用前主動告知設備工程師。	3. If a material is transparent, fragile, warped, has a special front/back surface, non-standard edge geometry, or any property that may affect vacuum chucking, sensing, or wafer transport, the operator shall inform the equipment engineer before use.

4. 個人防護與無塵室規範

PPE & Cleanroom Rules

中文	English
1. 進入作業區須依規範穿戴無塵服、無塵手套、無塵口罩及其他指定防護用品。	1. Wear the required cleanroom suit, cleanroom gloves, mask, and other designated protective equipment in the operating area.
2. 涉及光阻、溶劑、HMDS、顯影液（如 TMAH）或清洗作業時，應依化學品 SDS、場域安全規範與作業要求使用適當 PPE。	2. When handling photoresist, solvents, HMDS, developer (such as TMAH), or cleaning chemicals, use appropriate PPE in accordance with the chemical SDS, site safety requirements, and approved procedures.

5. 安全按鈕與緊急處置

Emergency & Safety Controls

中文	English
1. EMO 僅限火災、嚴重化學品洩漏、人員受傷/觸電、嚴重機械碰撞或其他立即危害人員與設備安全之緊急狀況使用。	1. Use EMO only for genuine emergencies such as fire, major chemical leakage, personal injury/electric shock, severe mechanical collision, or other immediate threats to personnel or equipment safety.
2. 一般製程異常或一般 Alarm 不得將 EMO 當作正常停止按鈕使用。EMO 動作後應立即通知設備工程師。	2. Do not use EMO as a normal stop button for routine process abnormalities or alarms. Notify the equipment engineer immediately after an EMO event.

中文	English
3. 發現搬送手臂異常或有碰撞疑慮時，可依核准程序使用 ARM PAUSE 暫停搬送，並立即通報。	3. If abnormal robot-arm movement or collision risk is observed, ARM PAUSE may be used in accordance with the approved procedure to stop transport, followed by immediate reporting.
4. 不得自行關閉、旁路、修改或破壞安全 Interlock。	4. Never disable, bypass, modify, or defeat a safety interlock.

6. 機台與操作介面安全

Hardware & Touch Panel Safety

中文	English
1. 操作觸控面板應使用設備指定之觸控筆；不得以尖銳硬物敲擊或重壓螢幕。	1. Use the designated stylus for the touch panel. Do not strike, press heavily, or operate the screen with sharp objects.
2. 機械手臂或搬送機構動作期間，嚴禁將手、工具或身體任何部位伸入運動區域。	2. Never place hands, tools, or any part of the body inside moving areas while the robot arm or transport mechanism is operating.
3. 靠近 Hot Plate 等高溫模組時應注意灼傷風險。	3. Use caution around hot modules such as Hot Plates to avoid burn injury.
4. Lot 啟動後應等待製程完成及 FINISHED 狀態確認後，再依標準程序取出 Cassette；RUNNING 狀態不得強行取放。	4. After a lot is started, wait until the process is complete and FINISHED status is confirmed before unloading the cassette according to the standard procedure. Do not force cassette handling while the system is RUNNING.

7. 嚴格禁止事項

Do-Not List

中文	English
1. 不得投入破裂、嚴重缺角或其他可能造成破片風險之晶圓。	1. Do not load cracked, severely chipped, or otherwise damaged wafers that may create a breakage risk.
2. 不得混用 COT 與 DEV 指定治具。	2. Do not mix designated COT and DEV fixtures.
3. 不得將未經設備工程師確認同意之特殊規格材料片或非標準基板投入設備。	3. Do not load special-specification materials or non-standard substrates without prior approval from the equipment engineer.
4. 新手或未受訓人員不得自行強制清除 Alarm、手動移動 Robot Arm、修改設備參數或執行未授權復歸。	4. New or untrained users shall not forcibly clear alarms, manually move the robot arm, change equipment parameters, or perform unauthorized recovery actions.

操作員安全原則 | Operator Safety Principle

不確定，就不要強制操作。設備異常，先停止、保留現場，再通知設備工程師。

If uncertain, do not force the operation. For abnormal conditions, stop safely, preserve the situation, and contact the equipment engineer.

Correct Wafer → Correct Recipe → Ready Check → Safe Processing → Report Abnormalities