

Thermo Shandon Thermo Shandon

Cryostat HM525 NX UV

High-performance cryostat for tissue sectioning Designed for fresh and fixed tissue samples Manual cutting drive Section thickness range of 1–100 µm Operating temperatures as low as -35°C Peltier...

Category: Laboratory & Diagnostics

Typical Failure Modes (category reference)

- Insufficient cooling - compartment fails to reach set temperature**

High

Symptoms: Compressor runs but compartment temperature stabilizes above -20°C; UV indicator lamp dim or off; sections thaw before mounting

Cause: Peltier module degradation or refrigerant leak in the cryobar assembly; thermal paste dry-out between module and sample chamber; failed temperature sensor (thermistor) reading open circuit
- Blade chatter / poor section quality**

Medium

Symptoms: Ragged edges; tearing of tissue; inconsistent thickness; operator vibration felt at handpiece

Cause: Blade not seated squarely in holder; blade holder wear allowing axial play; inadequate sample freezing rate; vibration from worn spindle bearing; UV lamp heat affecting local sample temperature
- Excessive frost / ice buildup on chamber walls**

Medium

Symptoms: Visible frost accumulation on chamber interior; reduced usable sectioning area; moisture condensation on objectives

Cause: Door seal (gasket) perished or misaligned; humidity ingress due to frequent lid opening; faulty door interlock allowing operation with open seal; condensate drain blockage
- UV lamp failure or intermittent operation**

Low

Symptoms: UV indicator light does not illuminate; sections appear non-sterilized or uncured; error message on display

Cause: UV lamp filament burnout; lamp socket corrosion; UV filter glass clouded or cracked; ballast/failure driver circuit fault; door interlock switch preventing lamp energization

Serviceable Parts & Consumables (category reference)

PART	P/N	SERVICE CLASS	REL. COST	R&R
Peltier cryobar assembly (including refrigerant charge)	-	Periodic replacement	\$\$\$\$	Expert-level
Door seal / gasket	-	Frequent wear item	\$	Easy
Blade holder assembly (disposable blade carrier)	-	Periodic replacement	\$\$	Fairly easy
Temperature thermistor (chamber sensor)	-	Periodic replacement	\$	Moderate
UV lamp and ballast assembly	-	Periodic replacement	\$\$	Moderate

Troubleshooting Approach (BioDeviceHub synthesis)

Symptom: Compressor runs but compartment does not cool below -15°C

1. Verify door gasket integrity; open door and inspect seal for compression cracks or dislodgement. Replace if compromised.
2. Measure thermistor resistance at room temperature and compare to manufacturer's curve; replace if out of tolerance.
3. Check refrigerant sight glass (if equipped) for bubbles indicating charge loss; perform leak test on cryobar if bubbles present.

Symptom: Sections tearing or ragged; inconsistent thickness

1. Ensure blade is seated squarely in holder; remove blade, inspect carrier seating surface for nicks or debris, clean with lint-free swab and isopropyl alcohol.
2. Verify sample is fully frozen; check compartment temperature readout. If temperature is marginal, allow additional freeze time or check for door seal leaks.
3. Inspect spindle bearing for play; rotate handwheel and feel for roughness or gritty motion. Replace bearing if play exceeds specification.