

DSS-M.07.02 | Mechanical Abrasion, Scoring, Impact & Cracking

Through-Thickness Crack Propagation

Mechanical - fissure extending through the lite; integrity cue

Diagnosis summary

A through-thickness crack is a continuous fissure that extends through the glass thickness (or is actively propagating toward full depth) and may branch, curve, or run under residual/operational stress. Any confirmed crack is an integrity indicator and is out of in-place restoration scope under VIS (CAT-5 by condition/location). Classification here is appearance-only; methodology is out of scope.

Field identification cues

- Surface-catch class (MSRT)
- Do not pass a stylus across any suspected crack. If needed, one light, non-marring pass adjacent to the feature may document nearby surface relief (for context only). MSRT is auxiliary and never determinative for integrity.
- Visual signature
- Unbroken, phase-stable line that can cross faint residues or micro-texture without interruption; may show tip sharpening in the propagation direction.

Classification, severity and scope

- Assign category by appearance + integrity:
- CAT-5 (default): Any confirmed through-thickness (or actively propagating) crack → Non-Repairable / Out of In-Place Scope.
- Reassign only if no crack is present:
- If the cue is an abrasive line (continuous score) with MSRT catch and chip-flank sparkle → classify under M.01 Linear scoring.
- If the cue is edge/penetration chipping without a continuous fissure → classify under M.03.01-M.03.04 or M.06.01 as appropriate.

Distinguishing criteria

- vs. Linear scratch/score: Scratches show abrasive edges and clear MSRT catch; cracks remain phase-stable, can cross faint films without losing continuity, and must not be stylus-tested.
- vs. Thermal stress crack (Th.03.01): Thermal origins often align with localized heating or solar hot-spot geometry; mechanism note may be added, but classification remains crack = CAT-5.
- vs. Star break (M.04.02): Star/bullseye networks are impact-origin crack systems; default CAT-5 by integrity.

Documentation and inspection

- Photo set (VIS): 12 / 36 / 72 in, normal + oblique, include raking macros that show continuous fissure and origin (edge, corner, hole/notch, impact).
- MSRT note. If recorded, note adjacent SC-class only (do not cross the fissure); one light, non-marring pass; polymer stylus if a coating is suspected.
- Forms: Pane ID; surface numbering (#1-#4; laminate-internal); worked surface Y/N; functional coating on worked surface?

Safety / repairability boundary: Complete only the non-invasive reveal and inspection steps authorized by the controlling VIS guidance. Classification does not authorize restoration, establish acceptance, or override stop-work, coating, crack, integrity, access, chemical, fall-protection, or project-specific requirements.

Full DSS publication: use the catalog download. Web specification:

<https://a7df714357.nxcli.io/learning-center/resource-center/damage-specification-standards/dss-m-07-02-through-thickness-crack-propagation/>