NDT and Hardness Records for API 5DP Drill Pipe Release

Pre-shipment release reference | API 5DP drill pipe | Document-control checklist

This reference sheet is designed for the NDT and hardness-record section of an API 5DP drill pipe pre-shipment inspection article. It summarizes what should be checked before release: inspected zones, record identity, hardness limits, test methods, report fields and document traceability. Project ITP, purchase specification and the applicable edition of API 5DP remain the controlling documents.

37 HRC	40 HRC	32 HRC	3x spacing
Max weld-zone hardness for Grades E, X, G, S	Max weld-zone hardness for Grade V	Max surface hardness for SS grades	Minimum spacing between hardness indentations

NDT Record Review Before Shipment Release

Record / Method	Release Data to Verify	Why It Matters
UT record	Pipe number or batch identity; inspected zone; calibration reference; result; acceptance basis.	Confirms the examined area and whether the result belongs to the pipe or lot being released.
MPI record	Tool joint, thread, shoulder, weld-sensitive area or other specified zone; indication result; acceptance note.	Supports surface and near-surface crack review around stress-concentrated areas.
EMI / full-length scan	Inspection scope; scanned length; equipment calibration; report traceability; operator and date.	Useful where full-length body screening is required by ITP or risk-based inspection plan.
Weld-zone NDE	Weld lot; tested area; method; result; acceptance basis; linkage to pipe identity.	The weld zone is a release-critical area because pipe body and tool joint performance meet there.
Hardness record	Test location; method; value; conversion basis if used; heat/lot and weld-lot linkage.	Controls hard spots and heat-treatment consistency in weld, tool-joint or SS-grade body checks.
Inspector / procedure data	Inspection date; inspector identity; procedure or ITP number; retest or repair note if any.	Prevents unidentified reports from being treated as release evidence.

Record Identity Chain

Pipe Marking	Heat / Lot	MTC	NDT + Hardness	Packing List	Release

Release should not depend on a single report. The same pipe identity should be visible in marking, MTC, NDT/hardness records, packing list and shipment documents.

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Hardness Control Data Points for Release Review

Control Point	Data Point / Limit	Release Meaning
Weld-zone surface hardness	Grades E, X, G and S: no hardness number above 37 HRC; Grade V: 40 HRC; SS grades: surface hardness not above 32 HRC.	Useful hard stop for weld-zone release review; any exceedance needs retest/rejection route as required.
Weld-zone through-wall mean hardness	Grades E, X, G and S: mean not above 37 HRC; Grade V: 40 HRC; SS grades follow Table C.18 / D.18 values.	Controls the weld-zone hardness profile, not only one surface reading.
Pipe-body hardness for SS grades	API 5DP Addendum 1 states pipe-body hardness limits apply only to SS grades; each drill pipe body is surface tested on the outside surface of the upset.	Important for sour-service grade body release; not a generic requirement for all non-SS pipe bodies.
Accepted hardness test methods	ISO 6506-1 / ASTM E10; ISO 6507-1 / ASTM E92; ISO 6508-1 / ASTM E18.	The report should state method and conversion basis if alternative or equivalent readings are used.
Indentation spacing	Hardness indentations are not closer than three indentation diameters, measured center to center.	Prevents adjacent impressions from affecting hardness readings.
Through-wall location for SS body	Radial cross-section at least one radius away from the end of the upset transition; all four quadrants tested.	Improves representation of body hardness away from the upset-transition disturbance zone.

Frequency and Evidence Notes

Area	Practical Review Note	Example Data to Record
Pipe body	Wall thickness verification is performed over the pipe-body length by documented procedure; areas not covered by automated systems require a documented prove-up route.	OD/WT path, unscanned end-area control, prove-up method, caliper/NDT device calibration.
Grades X/G/S/V body tests	Addendum frequency examples for PSL-1 include tensile and impact tests based on pipe size, e.g. 1 per 200/lot below Label 1: 6 5/8 and 1 per 100/lot at or above Label 1: 6 5/8.	Grade, size label, lot size, test count, result, lot linkage.
Tool joints	Tool-joint records should distinguish pin/box, heat or lot identity and the area tested; project ITP may specify additional witness points.	Pin/box identity, Charpy or hardness evidence when applicable, shoulder-area note.
Weld line	Addendum tables include weld-lot based test frequencies and three-location / 120-degree hardness checking language for relevant weld-line controls.	Weld lot, location, clock position or 120-degree pattern, reading value, result.

Minimum Downloadable Release Checklist

1. Pipe / heat / weld-lot identity shown on each NDT and hardness record.	2. Method, inspected zone, result, acceptance basis and inspection date are stated.
3. Weld-zone hardness values are within grade-specific HRC limits.	4. Retest or rejection notes are closed when any value exceeded the limit.
5. MTC, marking photos, reports and packing list carry the same identity.	6. Project ITP witness or hold points are completed before release.

Reference basis: API Spec 5DP scope and API Spec 5DP, 2nd Edition, Addendum 1 (2025). This sheet is a practical release aid; the applicable project ITP and purchased standard edition control final acceptance.