

Third-Party Inspection (TPI) Readiness Guide for Steel Pipes

Operational Protocol & Laboratory Testing Infrastructure for SGS, Bureau Veritas, Intertek, and TÜV Audits

1. Open-Gate Policy for International Inspectors

For Tier-1 energy corporations, municipal pipeline operators, and multinational structural engineers, independent verification is the cornerstone of risk mitigation. We firmly believe that a manufacturer's quality configuration should never rely solely on internal declarations. Therefore, our mill enforces a transparent, full-scope **Open-Gate Policy** for all major global Third-Party Inspection (TPI) agencies.

We systematically welcome appointed surveyors from **SGS, Bureau Veritas (BV), Intertek, TÜV SÜD/Rheinland, Lloyd's Register (LR), and DNV**. Whether executing random production spot-checks, comprehensive pre-shipment inspections (PSI), or witness-testing critical structural components (such as high-frequency ERW lines or specialized cross-hole sonic logging - CSL tubes), our laboratory infrastructure and engineering teams are fully optimized to support external verification without friction.

2. In-House Laboratory Testing Infrastructure & Equipment Profiles

Our facility hosts a fully equipped quality testing center. All calibration blocks, testing software, and physical machinery are regularly calibrated by ISO/IEC 17025 accredited metrology institutes, ensuring ready verification for external inspectors:

Testing Equipment Name	Technical Capacity & Scope	Primary Evaluation Target	Applicable Design Codes
Automated Multi-Channel Ultrasonic Testing (UT) Line	Continuous high-frequency piezoceramic angle-beam sensors; real-time automatic tracking systems.	Longitudinal weld seam full volumetric evaluation (cracks, slag inclusions, un-fused walls).	API Spec 5L, ASTM A53, ISO 10893-10
Digital Radiographic Testing (RT) / X-Ray System	High-penetration directional X-ray imaging units with automated image processing.	Localized cross-checking of critical pipe end joints and ambiguous UT signal segments.	ASTM E94, EN ISO 17636
Full-Body Hydrostatic Testing Machinery	Dual-end sealing heads; dynamic pressure capabilities up to 70 MPa (10,000 PSI).	Physical yield strength boundary validation and long-duration water-tight integrity tracking.	API 5L Barlow Equation, ASTM A370
Universal Mechanical Testing Machine	Microcomputer-controlled servo-hydraulic tension and bend tooling; maximum capacity up to 1000 kN.	Destructive confirmation of yield point, ultimate tensile strength (UTS), and elongation percentages.	ASTM A370, EN ISO 6892-1
Charpy V-Notch Impact Tester	Semi-automated pendulum impact system with low-temperature liquid nitrogen cooling chambers down to -196°C.	Verifying low-temperature fracture toughness profiles of line pipe bodies and heat-affected zones (HAZ).	ASTM E23, ISO 148-1

Testing Equipment Name	Technical Capacity & Scope	Primary Evaluation Target	Applicable Design Codes
Optical Emission Spectrometer (OES)	Spark-discharge multi-element detector capturing Carbon, Manganese, Sulfur, Phosphorus, and micro-alloys.	Direct chemical composition matrix validation matching Heat Number heat profiles.	ASTM E415

3. Standard Operating Procedure (SOP) for TPI Coordination

To eliminate scheduling delays and ensure a smooth inspection process, we execute a structured coordination workflow with the buyer's quality team:

Phase I: Pre-Production Alignment (ITP Submission)

Prior to rolling operations, our engineering team submits a comprehensive **Inspection and Test Plan (ITP)** for the client's approval. The ITP clearly defines Hold Points (H), Witness Points (W), and Review Points (R) allocated to the chosen TPI agency.

Phase II: On-Site Inspector Onboarding

Upon arrival at our mill, the assigned inspector is assigned a dedicated QA coordinator and provided with full access to the plant, including:

- Original mill steel raw material certificates (MTCs) and trace records matching the current Heat Numbers.
- Active machine calibration logs, certified gauge validation labels, and standard reference notch blocks.
- A secure technical workstation with high-speed network connections and physical printing capabilities.

Phase III: Active Testing & Specimen Witnessing

The TPI inspector directly witnesses raw physical material cutting and stamps specimens chosen for destructive universal testing. For non-destructive procedures, the surveyor retains full authority to audit real-time digital monitor readouts on the UT line or review hydrostatic pressure charts.

Phase IV: Sign-Off & Release Note Generation

Following successful visual inspection, dimensional tally auditing, and testing log verification, the inspector signs off on the official field report. Our logistics division initiates container loading or port transit immediately upon receiving the official TPI Release Note.

 **Specialized Protocol for Sonic Logging (CSL) Acoustic Tubes**

For foundation cross-hole sonic logging operations, joint sealing integrity is critical. Our QA laboratory supports specialized TPI witness protocols for acoustic tubes, including **100% pneumatic bubble leak testing** and internal mandrel clearance checks. This guarantees that your ultrasonic probes pass through easily without encountering structural blockages or joint failures during deep concrete pours.

Are You Finalizing a High-Specification Steel Pipe Contract Requiring Strict Third-Party Witness Validation?

We provide full ITP drafting support and seamless integration with your designated SGS, BV, or Intertek inspector to ensure absolute peace of mind.

Contact Our Technical Compliance Division: HUDSON@CANGTIEPIPE.COM | WhatsApp: +86 19061773869

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