

Annual Inspection Checklist for Gantry Crane

Inspection Item	Inspection Criteria	Condition	Remarks
Foundation & Rail System	Check if rail base is properly seated; no fractures or cracks.		
	Check rails for cracks, severe wear, or other defects.		
	Check rail-to-base contact; rails must not be suspended.		
	Check rail joints; gap should be 1–2 mm (4–6 mm in cold regions).		
	Check transverse alignment and elevation difference; must not exceed 1 mm.		
	Ensure all clips and bolts are present, secure, and meet specifications.		
	Check connections of rail joint plates.		
	Check longitudinal rail slope; standard is 1%, total length not exceeding 10m.		
	Rail height difference within a single section must not exceed 10 mm.		
	Check gauge deviation; allowable misalignment between indicator and slide $< \pm 15$ mm or per manufacturer specification.		
Structure	Check that gantry leg flange bolts are secure.		
	Check fit of base flange contact surfaces.		
	Inspect welds on sealing flange and column.		
	Check pins and bolts between stabilizers and tie rods; inspect ear plate welds.		
	Check tightness of stabilizer-to-crossbeam and lower beam bolts.		
	Inspect welds on lower stabilizer beam.		
	Check bolt tightness between stabilizer, main rod, and crossbars.		
	Inspect welds on beams and legs.		
	Check main girder joints, force-transmission rods, and deformation/welds of connections.		
	Inspect welds on upper/lower flanges and web plates of main girders for cracks.		
	Check for overall deformation and if deflection is within limits.		
	Compare heights of left and right girders; must be within tolerance.		
	Inspect girder cross joints and roof plate welds.		

Travel Wheels	Check wear, deformation, rim condition, or absence of rim.		
	Inspect rail conditions of the support bracket—joints, wear, damage.		
Main Hoisting Mechanism	Check gear reducer lubrication.		
	Inspect braking performance of rotating parts.		
	Check tightness across moving parts.		
	Verify rope end is properly secured to the hoist.		
	Inspect gear reducer oil level and quality.		
	Check for oil leaks or gear damage.		
	Ensure reducer is securely mounted.		
	Confirm proper operation of crane brake.		
	Check brake gap, pad wear, and drum wear.		
	Inspect couplings, bolt tightness, and wear of elastic connectors.		
	Inspect motor mounting and protection.		
	For hydraulic systems: check pump station operation, leaks, and brake pressure.		
	Inspect pulley wear and safety features.		
	Check all component connections.		
Auxiliary Hoist	Check electric hoist track-to-beam connection and rail wear.		
	Check rail joint plates and bolts; ensure alignment meets operation requirements.		
	Inspect hoist travel wheel wear and gap to rail for safety compliance.		
	Check wire rope winding.		
	Check pull rope condition for wear or damage.		
	Inspect brake function and brake pad wear; check clearance and force.		
	Inspect cable-to-hoist connection.		
	Check tightness of bolts on all connections.		

Hook & Cable	Check hook wear.		
	Inspect hook seals and damage.		
	Check pulley rotation and wear; ensure anti-jump measures for wire rope.		
	Check lubrication of moving parts.		
	Inspect cables for deformation: kinks, crushing, cuts, broken wires, rust, burns, or diameter reduction.		
	Check tension at cable ends.		
Safety Devices	Inspect cab installation.		
	Check travel safety devices: limit switches, rail clamps (electric/hydraulic), anti-derail devices.		
	Inspect trolley alignment correction device.		
	Check for windproof cables.		
	Confirm ground anchor installation and function.		
	Check trolley buffer installation.		
	Inspect crane audio/visual alarms.		
	Verify complete and functional hoisting safety devices: travel limiters, end stops, height/weight		
	Confirm monitoring system works properly.		
	Check anemometer operation.		
Electrical System	Inspect wires for damage, sagging, and loose supports.		
	Ensure motor protection is complete and in good condition.		
	Check motor appearance, junction boxes, covers, wiring tightness, and cable integrity.		
	Verify integrity and condition of limit switches.		
	Confirm adequate lighting.		
	Inspect protection of control box.		
	Check components and wiring inside control cabinet.		
	Inspect cab electrical components for proper operation.		
	Check power cable drum for normal operation.		
	Inspect crane wire rope guide rails; confirm smooth movement.		
	Inspect hoist wire rope guide rail; confirm proper movement during operation.		

	Inspect brake cable connectors and cables.		
On-Site Working Conditions	Check for obstructions near crane rails.		
	Inspect platforms and frames for loose objects.		
	Check surroundings (top, bottom, left, right) for any obstruction to crane movement.		