

Daily Inspection Checklist for Pneumatic Industrial Manipulators

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Document Category	Operation and Maintenance / Daily Inspection
Applicable Products	Pneumatic Industrial Manipulator / Pneumatic Balancer Custom Tooling
Intended Users	Operators / Team Leaders Maintenance Personnel
Publication Date	2026-06
Recommended Use	Inspect before startup on every shift Record and verify abnormalities immediately

Purpose: This checklist is used for routine pre-start inspections and recording abnormalities. Print and post it near the equipment, or retain it as the team's equipment-inspection record.



Safety Notice: Before inspection, ensure that the workpiece is stable or has been unloaded. If abnormal noise, structural looseness, cracks, brake failure, failure of the tooling to release, unintended raising or lowering, or any other abnormality is found, stop using the equipment immediately and contact the site supervisor or manufacturer. Personnel without the required qualifications must not dismantle or modify pneumatic circuits, load-bearing structures, or safety devices.



I. Equipment and Inspection Information

Customer/Plant		Equipment Name	Pneumatic Industrial Manipulator / Pneumatic Balancer	Equipment No.	
Installation Workstation		Inspection Date	Year Month Day	Shift	☐ Morning ☐ Day ☐ Night
Inspector		Site Responsible Person		Equipment Status	☐ Normal ☐ Out of Service ☐ Awaiting Repair
Air-Supply Pressure	MPa	Rated Load	kg	Tooling Type	☐ Gripper ☐ Vacuum ☐ Hook ☐ Internal Expansion ☐ Other

II. Daily Pre-Startup Inspection Checklist Complete before the first cycle of every shift; print and check as applicable

No.	Inspection Point	Inspection Item	Acceptance Criterion	Result	Abnormality / Corrective Action
01	Work Area	Check for personnel within the operating radius, obstructions, oil contamination on the floor, or debris.	The work area is clean, access routes are clear, and there is no obvious interference.	☐ Pass ☐ Abnormal ☐ N/A	
02	Equipment Appearance	Inspect the column, main arm, secondary arm, support frame, and covers for deformation, impact damage, or abnormal wear.	No obvious deformation, cracking, impact marks, or abnormal wear.	☐ Pass ☐ Abnormal ☐ N/A	
03	Base / Anchors	Check base seating, anchor bolts, embedded parts, or the locked state of the mobile base.	The base is secure; bolts are not loose; the mobile base is locked securely.	☐ Pass ☐ Abnormal ☐ N/A	
04	Load-Bearing Connections	Inspect the main load-bearing bolts, pins, retaining rings, cotter pins, and connection flanges.	All connectors are present, secure, not missing, and free of obvious wear.	☐ Pass ☐ Abnormal ☐ N/A	
05	Rotary Joints	Gently push the manipulator and check the main, intermediate, and front joints for proper rotation.	Rotation is smooth, with no binding, abnormal noise, obvious movement, or excessive play.	☐ Pass ☐ Abnormal ☐ N/A	
06	Joint Brakes	Check that each joint brake control button or knob operates correctly.	Brake response is normal, with no obvious drift after locking.	☐ Pass ☐ Abnormal ☐ N/A	
07	Vertical Balance	Test raising and lowering without a load; observe whether the unit raises, lowers, or oscillates on its own.	The unloaded unit remains stably balanced and raises and lowers smoothly, with no unintended descent.	☐ Pass ☐ Abnormal ☐ N/A	
08	Air-Supply Pressure	Check the filter-regulator/pressure gauge and confirm the supply pressure and any fluctuations.	Pressure is stable and normally not below the equipment requirement, with no abnormal fluctuation.	☐ Pass ☐ Abnormal ☐ N/A	
09	Filter-Regulator	Check the filter bowl for condensate, oil contamination, cracks, and proper drainage.	The filter bowl has no excessive condensate and is undamaged; drain it when necessary.	☐ Pass ☐ Abnormal ☐ N/A	
10	Air Tubing and Fittings	Check the air tubing in moving areas for kinks, wear, bulges, leaks, or disconnection.	Air tubing is undamaged, fittings are securely connected, and it is not pulled during motion.	☐ Pass ☐ Abnormal ☐ N/A	
11	Control Handle	Check the buttons, handles, knobs, labels, and securement of cable conduit/air tubing.	Buttons return normally, labels are legible, and the control handle is not loose.	☐ Pass ☐ Abnormal ☐ N/A	
12	Tooling Connection	Inspect the tooling connection flange, quick-change mechanism, lifting points, locating pins, and fasteners.	The tooling is securely connected, lifting points are free of cracks, and the quick-change mechanism locks reliably.	☐ Pass ☐ Abnormal ☐ N/A	
13	Grip / Vacuum / Release	Test gripping and release without a load; for vacuum tooling, check the suction cups, vacuum gauge, and filter.	Gripping and release complete their full travel; suction cups are undamaged; vacuum generation and release operate normally.	☐ Pass ☐ Abnormal ☐ N/A	
14	End Stops / Safeguards / Test Run	Inspect end stops, anti-collision blocks, and anti-drop features, then complete one no-load or low-load test run.	End stops operate correctly; the path is free of interference; motion is stable, and the operator's position is safe.	☐ Pass ☐ Abnormal ☐ N/A	

III. Weekly / Monthly Inspection Recommendations For maintenance teams or equipment supervisors

Interval	Inspection Item	Inspection Details	Recommended Action
Weekly	Load-Bearing Bolts and Welded Areas	Inspect the main support, arms, base, and tooling connections for looseness, cracks, or failed welds.	If looseness is found, stop the equipment immediately and tighten it. If cracks or failed welds are found, remove the equipment from service and contact the manufacturer.
Weekly	Rotary Joints and Bearings/Bushings	Check for smooth rotation, abnormal noise, increased play, or uneven wear.	Record the abnormal location; arrange maintenance, adjustment, or replacement of worn parts as necessary.
Weekly	Air Tubing, Cable Carriers, and Moving Harnesses	Check the motion path for pulling, abrasion, or kinking, and check whether retaining clips are loose.	Secure again with sufficient movement allowance; replace damaged air tubing or protective sleeves.
Weekly	Tooling Wear Parts	Inspect gripper pads, suction cups, hooks, locating blocks, and anti-scratch pads for wear or aging.	Replace parts when wear compromises gripping safety; defective parts must not remain in service.
Monthly	Brakes and End-Stop System	Inspect joint brakes, mechanical end stops, anti-collision blocks, anti-drop pins, and safety-device operation.	Adjust or replace failed components; verify that locking and end stops operate reliably.
Monthly	Overall Balance and Operating Envelope	Check unloaded/loaded balance, operating radius, lift stroke, and path interference.	If the workpiece or workstation changes, reassess the solution and tooling.
Monthly	Nameplate and Safety Labels	Check that rated-load information, operating instructions, and safety warnings are legible and complete.	Replace missing or illegible labels to prevent misuse.

IV. Abnormality Record and Sign-Off All abnormalities must be recorded and tracked through closure

Date/Shift	Abnormal Location	Description of Abnormality	Temporary Corrective Action	Equipment Shut Down?	Action Owner / Verifier

Inspection Result: ☐ Fit for Normal Use ☐ Continue Use Under Observation ☐ Shut Down Pending Corrective Action ☐ Manufacturer/Maintenance Notified

Inspector Signature:	Team Leader Verification:	Maintenance Verification:	Date:
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