Rectangular Duct Radius Elbow Inspection Guide

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Project	Location	Status

Date	Completed by

Fabrication Reference

No.	Done	Check / Requirement	Result	Notes / Evidence
1	☐	Confirm the approved fabrication detail matches the elbow being inspected and identifies the required dimensions, bend geometry, and joint construction.		

Inlet Dimensions

No.	Done	Check / Requirement	Result	Notes / Evidence
2	☐	Measure the inlet opening width and height and compare them with the approved fabrication detail, using specified tolerances where provided.		

Outlet Dimensions

No.	Done	Check / Requirement	Result	Notes / Evidence
3	☐	Measure the outlet opening width and height and compare them with the approved fabrication detail, using specified tolerances where provided.		

Bend Angle

No.	Done	Check / Requirement	Result	Notes / Evidence
4	☐	Measure the bend angle and compare it with the approved fabrication detail, using the specified tolerance where provided.		

Throat Radius

No.	Done	Check / Requirement	Result	Notes / Evidence
5	☐	Check the throat radius against the approved fabrication detail using a radius template or dimensional measurement, applying the specified tolerance where provided.		

Heel Radius

No.	Done	Check / Requirement	Result	Notes / Evidence
6	☐	Check the heel radius against the approved fabrication detail using a radius template or dimensional measurement, applying the specified tolerance where provided.		

Connection Face Fit

No.	Done	Check / Requirement	Result	Notes / Evidence
7	☐	Check the inlet and outlet connection faces for distortion that would prevent the specified mating fit.		

Curved Surface Profile

No.	Done	Check / Requirement	Result	Notes / Evidence
8	☐	Inspect the internal curved surfaces throughout the bend for unintended kinks, buckling, dents, or abrupt contour changes. Use lighting and a mirror or camera where direct viewing is obstructed.		

Straight-to-Curve Transitions

No.	Done	Check / Requirement	Result	Notes / Evidence
9	☐	Check the transitions between straight ends and curved sections for unintended steps or sharp offsets.		

Internal Edge Finish

No.	Done	Check / Requirement	Result	Notes / Evidence
10	☐	Visually inspect exposed internal cut edges for burrs or sharp projections.		

Seam Integrity

No.	Done	Check / Requirement	Result	Notes / Evidence
11	☐	Inspect each seam along its accessible length for unintended open gaps or splits.		

Seam Construction

No.	Done	Check / Requirement	Result	Notes / Evidence
12	☐	Verify seam engagement and fastening, as applicable, against the specified joint detail.		

Specified Seam Sealing

No.	Done	Check / Requirement	Result	Notes / Evidence
13	☐	Where seam sealing is specified, verify that the sealing material, location, and coverage match the specified sealing detail, with no visible breaks in required coverage.		

Unintended Internal Projections

No.	Done	Check / Requirement	Result	Notes / Evidence
14	☐	Inspect the airflow passage for fastener ends, seam folds, or excess sealant projecting beyond the intended internal profile shown in the fabrication or joint details.		

Vane and Support Arrangement

No.	Done	Check / Requirement	Result	Notes / Evidence
15	☐	Where turning vanes or internal supports are specified, verify their presence, orientation, and spacing against the approved fabrication detail.		

Vane and Support Attachment

No.	Done	Check / Requirement	Result	Notes / Evidence
16	☐	Where turning vanes or internal supports are specified, verify their attachment points and fastening against the approved fabrication detail.		

Foreign Material Clearance

No.	Done	Check / Requirement	Result	Notes / Evidence
17	☐	Inspect the full elbow interior for loose metal, swarf, packaging, tools, or other foreign material remaining in the airflow passage.		

Comments / Follow-up

Checklist guidance

A rectangular duct radius elbow can match its overall dimensions yet still contain distorted connection faces, uneven internal contours, or seam defects. This checklist supports a focused fabrication inspection, linking measurements and visual checks to the approved details without assuming universal tolerances or construction requirements.

1. Start with the approved fabrication and joint details that apply to the elbow, identifying specified dimensions, tolerances, and conditional features.

2. Follow the checklist's geometry checks, comparing measured dimensions, angles, and radii with the approved reference.

3. Continue through the internal profile and seam checks, using lighting and viewing aids where direct access is obstructed.

4. Apply the sealing, vane, and support checks only where those features are specified, then complete the interior clearance inspection.

Tick the box when complete. Record Not done or N/A in Result and note any follow-up.