

# Common Size and Connection Matrix

Connection name alone does not fully define tool-joint geometry or internal clearance.

Tube OD	Connection	Typical Tool Joint OD	Internal-Clearance Review Focus
2-7/8 in.	NC26	Typical tool joint OD 3-3/8 in.	Tool-joint ID / bore-back / shoulder area review
3-1/2 in.	NC38	Typical tool joint OD 4-3/4 in.	Internal clearance / drift path / match point
4 in.	NC40	Typical tool joint OD 5-1/4 in.	Tool-joint ID / drift / shoulder area review
4-1/2 in.	NC46	Typical tool joint OD 6-1/4 in.	Internal clearance / drift path / match point
5 in.	NC50	Typical tool joint OD 6-5/8 in.	Tool-joint ID / bore-back / match point
5-1/2 in.	5-1/2 FH	Typical tool joint OD 7-1/4 in.	Internal clearance / drift path / match point
6-5/8 in.	6-5/8 FH	Typical tool joint OD 8 in.	Tool-joint ID / bore-back / shoulder area review

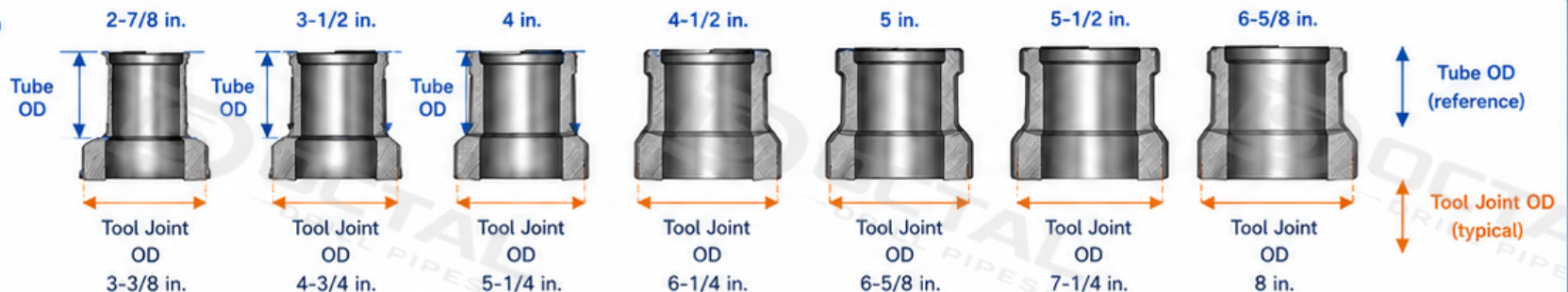
**i** The connection designation alone does not define tool joint OD, tool joint ID, shoulder area, bore-back geometry or performance capacity.

Verify actual dimensions and geometry at every match point to ensure full internal clearance and reliable tool passage.

## TUBE OD VS TOOL JOINT OD

As tube OD increases, tool joint OD generally increases — but geometry and internal clearances vary by design

Case-by-case review is essential.



### ENGINEERING REVIEW CHECKPOINTS

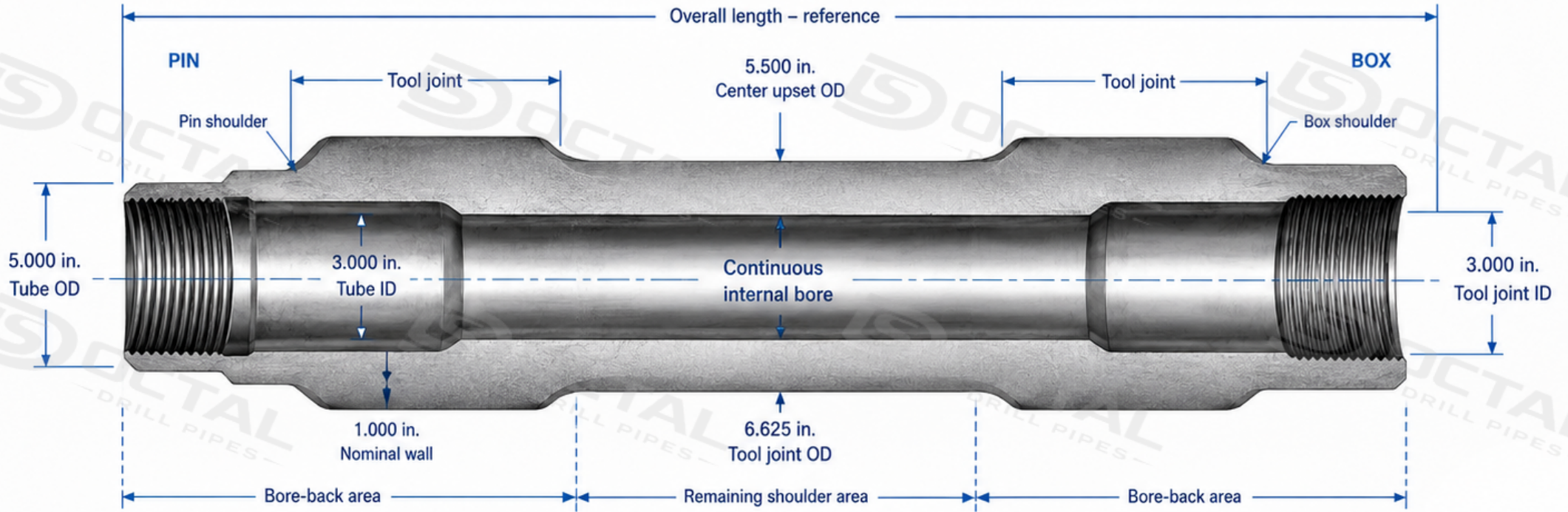
**1** **Confirm Actual Tool-Joint OD**  
Do not rely solely on connection name. Obtain drawings or measured data.

**2** **Verify Minimum Through-Bore**  
Confirm tool-joint ID, bore-back profile and shoulder diameters.

**3** **Review Tool-Passage Restrictions**  
Assess drift, match point transitions and any internal restrictions.

# 5 Inch NC50 Geometry Review

Connection review must consider tube dimensions, upset geometry, tool-joint section and remaining shoulder area.



**NC50 CONNECTION**

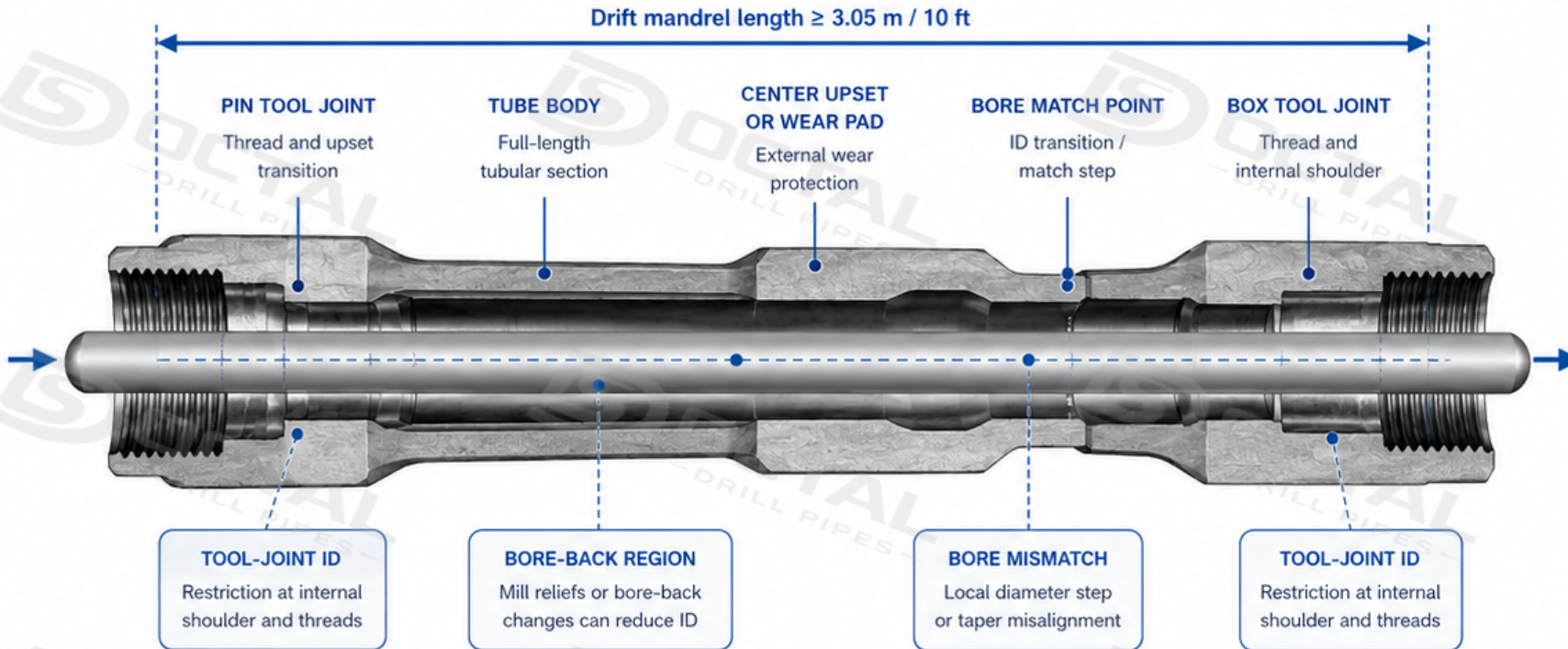
REVIEW CHECKLIST	
Dimensions	<input checked="" type="checkbox"/> Verify tube OD, tube ID, wall, upset OD, tool-joint OD and tool-joint ID.
Bore Continuity	<input checked="" type="checkbox"/> Confirm continuous internal bore match across pin, box and tube body.
Shoulder Assessment	<input checked="" type="checkbox"/> Evaluate remaining shoulder area after bore-back and tool-joint transitions.
Connection Condition	<input checked="" type="checkbox"/> Inspect threads, shoulders and seal areas; verify cleanliness and protection.
Compatibility	<input checked="" type="checkbox"/> Ensure all components are compatible in size, grade and thread form.

- KEY REVIEW NOTES**
- Tool-joint OD and ID affect remaining shoulder area and through-bore continuity.
  - Center upset and transitions influence stress distribution and fatigue performance.
  - Bore-back area must maintain smooth internal transitions and eccentricity control.
  - Verify alignment of pin and box shoulders and connection engagement length.
  - Do not evaluate connection capacity from designation alone.

**⚠ Make-up torque shall follow the approved connection data for the actual OD, ID, material, shoulder area, thread condition and compound friction factor.**

# Full-Length Drift and Tool Passage

Continuous internal clearance is controlled by the minimum through-bore across the complete joint.



CLEARANCE CHECKLIST	
<input type="checkbox"/>	MWD tool OD
<input type="checkbox"/>	LWD tool OD
<input type="checkbox"/>	Survey instrument OD
<input type="checkbox"/>	Drop-ball diameter
<input type="checkbox"/>	Dart diameter
<input type="checkbox"/>	Fishing-tool OD
<input type="checkbox"/>	Internal coating allowance
<input type="checkbox"/>	Tool-joint ID
<input type="checkbox"/>	Bore-back
<input type="checkbox"/>	Bore mismatch

**!** The minimum continuous through-bore, not the nominal tube-body ID alone, controls tool passage.

**RELEASE REVIEW – KEY CHECKS**

<p><b>1</b></p> 	<p><b>VERIFY 10 FT DRIFT PASS</b></p> <p>Confirm a straight drift mandrel of ≥ 3.05 m (10 ft) passes through the complete assembly.</p>	<p><b>2</b></p> 	<p><b>CONFIRM MINIMUM RESTRICTION LOCATION</b></p> <p>Identify the smallest ID and document the location and cause (tool-joint ID, bore-back, or mismatch).</p>	<p><b>3</b></p> 	<p><b>REVIEW COATING OR BORE-BACK ALLOWANCE</b></p> <p>Validate internal coating thickness or bore-back depth is accounted for before tool deployment.</p>
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