



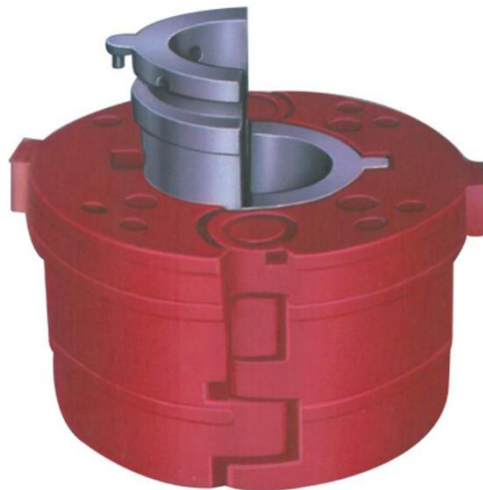
INSERT BUSHING CAT IV FULL INSPECTION CERTIFICATE

Customer:	Daqing Drilling Company	Date Of Service:	10-May-2025
Type Of Inspection:	CAT IV INSPECTION	Report No:	QC-B-05-25-0263-37
Rig & Location:	DQ Rig 022	Specification:	API RP 7L

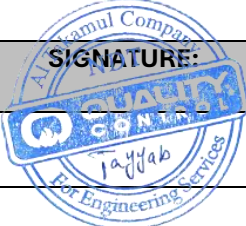

PROCEDURE

The Rig was equipped Insert Bushing with the Following specifications:

S/No:	333
Inspection Frequency:	1 Year
Equipment Name	Insert Bushing 13-3/8"
Specification:	API RP 7L CAT IV



-The products have been examined and found to conform to the relevant Quality standards and delivery are thus permitted

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Tayyab Mehmood		Mohammed Abdullah	



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PROCEDURE

Insert Bushing Inspection Procedure based on API Standards (CAT IV – Full Inspection

INSERT BUSHING INSPECTION PROCEDURE (CAT IV – FULL INSPECTION)

Per API Standard & OEM Specifications

1. Disassembly & Preparation

- Remove both halves of the drilling bowls from the insert bushing using an approved lifting chain sling.
- Clean all components to remove debris, grease, or abrasive materials.

2. Visual Inspection

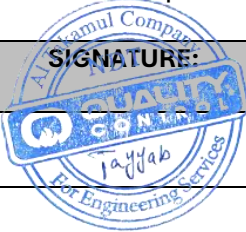

- Inspect inner/outer surfaces of the bowl for:
 - Burrs, cracks, or panned-over edges.
 - Wear, galling, or deformation in load-bearing areas.
- Verify the taper condition; ensure no gouges or irregularities.

3. Dimensional Check

- Measure taper length using a straight edge (per OEM specs).
- Check taper angle and throat diameter against OEM tolerances.
- Confirm slip height in the bushing; ensure slips are not riding too low.

4. Non-Destructive Testing (NDT)

- Perform Magnetic Particle Inspection (MPI) on:

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- Recess areas.
- Load-bearing surfaces.
- Document any indications of cracks or defects.

5. Reassembly

- Lubricate the back of the drilling bowls before reassembly.
- Reinstall bowls into the insert bushing using the proper lifting sling.
- Ensure proper alignment and seating of components.

6. Reporting

- Prepare a detailed inspection report including:
 - Dimensional measurements.
 - MPI results.
 - Observations (e.g., wear, corrosion).
 - Compliance with OEM/API standards.

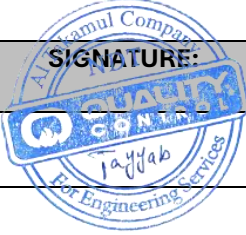

Notes:

Critical Areas: Focus on taper integrity, slip engagement, and load-bearing surfaces.

Rejection Criteria: Discard components with cracks, excessive wear, or out-of-spec dimensions.

Safety: Always use certified lifting equipment and follow OEM torque/assembly guidelines.

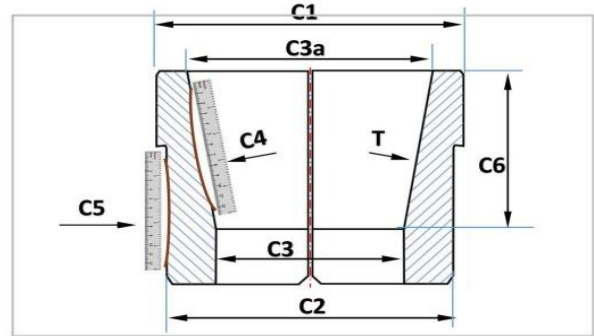
Let me know if you need additional details or formatting adjustments!

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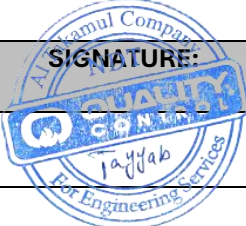

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补芯检测项点 Bushing parameters	制造规范 OEM Specification	测量工具 Measuring tool	磨损量推荐 the maximum allowable tolerance
补芯上沿外径 C1 Bushing upper section OD C1	Φ 519.7-520.0mm	卷尺 tape	小于 514mm 报废 Less than 514mm, Reject
补芯下本体外径 C2 Master Bushing lower section OD C2	Φ 481.5-481.8mm	卷尺 tape	小于 475mm 报废 Less than 475mm, Reject
补芯通孔内径 C3 The ID of bushing ID C3	Φ 381.0mm	卷尺 tape	大于 387mm 报废 More than 387mm, Reject
补芯内锥度 T Bushing inner taper T	9° 27' 45" ± 2' 30" T = (C3a - C3) / C6 = 0.333	锥度表 taper gauge	小于 9° 或大于 10° 报废 T Less 0.317 or bigger 0.352 Reject
补芯锥面磨损量 C4 The wear on bushing cone C4	-----	钢板尺 steel rulers	大于 1.6mm More than 1.6mm, Reject
补芯下本体外壁磨损量 C5 The wear on outer wall of bushing lower section	-----	钢板尺 steel rulers	大于 1.6mm More than 1.6mm, Reject

Measures	Actual Dim.	The Maximum allowable tolerance	Result
Bushing Upper Section OD C1	520 mm	(Min) 514 mm	ACCEPT
Bushing Lower Section OD C2	479 mm	(Min) 475 mm	ACCEPT
The ID Of Bushing ID C3	382 mm	(Max) 387 mm	ACCEPT
Bushing Inner Taper T	0.32 mm	T= (C3a-C3)/C6=0.333	ACCEPT
The Wear On Bushing Cone C4	0.25 mm	More Than 1.6 Reject	ACCEPT
The Wear On Outer Wall Of Bushing Lower Section	0.34 mm	More Than 1.6 Reject	ACCEPT

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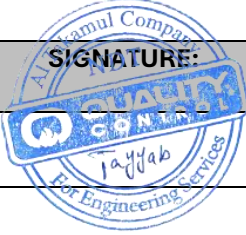

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PROCEDURE

Visual and MPI were carried out on the Available Critical Areas of the **INSERT BUSHING** and were Found Satisfactory for Further Use.

CAT IV Inspection Was Carried out on the Insert Bowl and found **Acceptable** at The Time of Inspection.



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