



HDD ROLLER-CONE REAMING TOOLING

Operating & Inspection Guide

Field controls for model verification, roller assembly inspection, installation, startup, monitoring, retrieval and post-run disposition.

Document scope

Applicable to the four supplied bolt-on hole opener drawings. The rig manual, site procedure, approved bore plan and engineering limits take precedence.

Model	Drawing	OD	Overall length	Connection	Roller / nozzle reference
12 in Bolt-On Hole Opener	D260907B-1	304.8 mm	1000 mm	2-7/8 IF BOX, both ends	4 replaceable roller-cone assemblies shown; 6 nozzles (4 front + 2 back)
14 in Bolt-On Hole Opener	D260902-B2	355.6 mm	1118 mm	3-1/2 IF BOX, both ends	4 replaceable roller-cone assemblies shown; 6 nozzles (4 front + 2 back)
16 in Millteeth Hole Opener	D260701B-2	406.4 mm	1250 mm	6-5/8 FH BOX (upper) / 6-5/8 FH PIN (lower)	4 milled-tooth roller cones; drawing identifies IADC 327; 6 NPT-thread nozzles (4 front + 2 rear)
32 in Bolt-On TCI Hole Opener	D260428B-1	812.8 mm	1880 mm	4-1/2 REG BOX, both ends	7 x 12MH-3R replaceable roller-bit assemblies; No nozzle count or size stated on drawing

Verified facts and project-controlled inputs

Verified from supplied drawings	Must be confirmed for the project
Model, drawing/date/revision, outside diameter, overall length, connection, shown roller arrangement, identified nozzle arrangement and hardfacing notes.	Formation suitability, actual mass, lift plan, makeup procedure, rotation, torque, pullback, thrust, flow, pressure, staging and acceptance limits.

Four-step controlled use

1 Identify	2 Match	3 Inspect	4 Approve
Confirm model and drawing.	Check bore, rig and connection.	Verify delivered configuration.	Release under the project plan.

Controlled-use notice: Drawing fields for weight are blank. Do not infer weight or universal operating limits from nominal diameter, connection or drawing scale.



1. Pre-job verification and installation

No universal operating limits

The supplied drawings do not specify rotation, torque, thrust, pullback, flow, pressure or makeup torque. Establish approved limits for the actual tool, rig, bore, formation and fluid program.

Engineering and receiving checks

- [] Model, drawing, revision, OD, length and both connections match the job plan.
- [] Formation and enlargement stage have been reviewed for the specified roller type.
- [] Actual mass and lift method are verified from controlled records.
- [] All roller/bit assemblies, mounting blocks, fasteners and retention features are present.
- [] Rollers rotate as required by the approved inspection procedure without abnormal looseness or binding.
- [] Nozzles and passages match the approved hydraulic plan where drawing data is available.
- [] Body, hardfacing, weld areas, threads and shoulders show no crack, deformation, washout or unauthorized repair.

Installation sequence

Isolate and support	Stop the rig and fluid system; control stored energy; support the hole opener with rated equipment.
Clean and identify	Clean mating threads/shoulders and confirm model, drawing, orientation and roller layout.
Inspect bolt-on assemblies	Check mounting contact, approved fasteners, retention and roller freedom under the applicable procedure.
Engage connections	Align slowly, prevent cross-threading and use the approved thread compound.
Make up	Apply the approved model-specific connection procedure and torque. Connection designation alone is not a torque value.
Verify hydraulics	Confirm nozzle arrangement, unobstructed passages, pump capability and returns plan.
Clear and start	Establish the exclusion zone, begin circulation/rotation under the approved low-energy startup condition, and confirm stable response.

2. Reaming and response

Monitor continuously

- Torque, pullback load, rotation and advance-rate trends.
- Fluid pressure, flow, returns, losses and cuttings transport.
- Impact, vibration, sound and evidence of uneven roller loading.
- Formation transitions and changes in cuttings character.
- Roller, fastener or connection movement indicated by abnormal response.

Observation	First checks	Required response
Torque/pullback increase	Formation change, pack-off, roller condition, alignment	Reduce energy and stop at approved criteria; do not force through.
Pressure rise or weak returns	Nozzle/passage restriction, fluid change, loss zone	Follow the hydraulic or loss-response plan; isolate before inspection.
Impact or cyclic vibration	Uneven loading, roller damage, loose assembly	Stop/retrieve when approved criteria are reached; quarantine if damage is suspected.
Connection or mounting movement	Makeup, fastener retention, contact surfaces	Stop; isolate; inspect and obtain written release before reuse.



3. Retrieval and post-run inspection

- [] Isolate rotation, axial movement and pressure; mechanically support the assembly.
- [] Clean without striking cutting structures or forcing debris into threads and bearings.
- [] Inspect every roller/bit assembly for rotation, looseness, tooth/insert loss, cracking and uneven wear.
- [] Inspect blocks, bolt holes, fasteners, retention features and contact surfaces.
- [] Inspect hardfacing, weld areas, body, nozzles/passages, threads and shoulders.
- [] Map wear by roller position and record photographs, operating history and formation changes.
- [] Protect connections and store the tool dry in a stable cradle.

Wear and event record

Position / time	Roller or body condition	Operating trend / formation	Action / disposition

Immediate quarantine

Quarantine after a drop, missing tooth/insert, roller seizure, loose mounting component, body/weld crack, washout, connection damage or unauthorized modification.



4. Inspection acceptance and field support

Acceptance basis

This guide records identification, visible condition and observations. Numerical wear limits, bearing play, fastener requirements, connection acceptance and repair criteria must come from the controlled drawing, approved inspection procedure, manufacturer instruction or written engineering disposition.

Support package

Identification	Model, drawing/revision and serial/batch reference.
Job record	Bore interval, enlargement stage, formation and fluid program.
Operating data	Rotation, torque, pullback, pressure, flow and abnormal event timeline.
Condition evidence	Overall, roller-by-position, mounting, hardfacing, nozzle, body and connection photographs.
Disposition request	Requested reuse, roller replacement, repair or rejection decision.

Frequently asked questions

Can a roller assembly be replaced in the field?

Only under an approved replacement procedure using the correct assembly, fasteners, retention method, inspection and release.

Can a roller be substituted by size alone?

No. Match designation, cutting structure, mounting interface, orientation and approved body drawing.

Can the tool operate after a roller stops turning?

Do not continue by assumption. Stop under the approved procedure, retrieve when required, quarantine and inspect.

How is the tool released after repair?

Complete the repair record, verify required inspection results and obtain authorized release before service.

Pre-service release

Release item	Evidence / reference	Status	Authority