

# Drill Lock Assembly <sup>9</sup>/<sub>8</sub>-in DLA-type 4A tool

Anchors the BHA to casing to enable casing while drilling

## When it is used

Operations using Allegro CD\* directional casing-while-drilling service

## How it improves wells

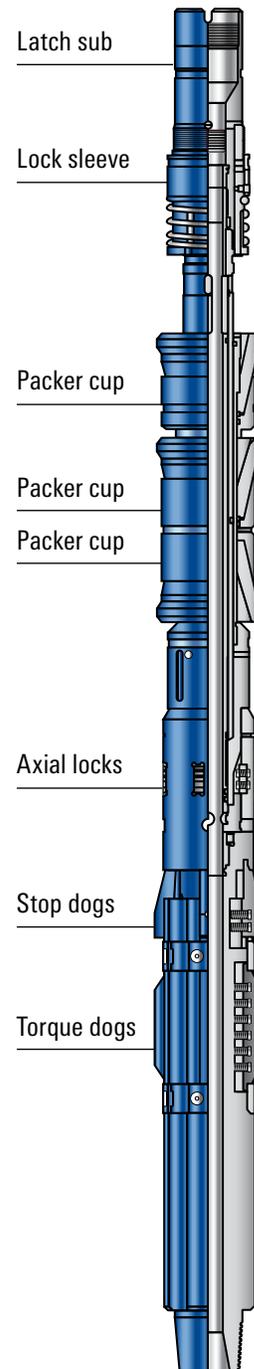
- Provides consistent rotation and weight on bit during drilling operation
- Maximizes borehole strength and stability
- Prevents fluid migration into the casing

## How it works

The drill lock assembly (DLA) anchors the BHA to the casing and is deployed downhole via drillpipe.

Once set, the DLA is locked into the casing profile nipple (CPN) via both axial and torsional locking dogs, enabling the BHA to be rotated with the casing. As the casing string is rotated, torque is transferred from the casing string through the DLA torque dogs and into the BHA. The axial locks enable weight to be transferred from the casing string to the pilot bit.

The DLA uses a series of packer cups that act as seals to direct fluid from the casing string into the BHA and pilot bit. The packer cups prevent fluid migration into the casing in the event of a well influx.



Drill lock assembly.

### Specifications<sup>†</sup>

Lower thread count	4½-in API XH pin
Tool major diameter	
32.3 lbm/ft	8.75 in [22.23 cm]
36–43.5, 47–53.5 lbm/ft	8.375 in [21.28 cm]
Tool minor diameter	2.75 in [69.9 mm]
Bypass area	3.14 in <sup>2</sup> [20.26 cm <sup>2</sup> ]
Tool length	9.45 ft [2.88 m]
Tool weight	970 lbm [440 kg]
Max. tensile load	398,000 lbf [1,770,392.2 N]
String length	9.08 ft [2.77 m]
Max. pressure	3,000 psi [20.7 MPa]
Max. bypass flow rate	300 galUS/min [68.14 m <sup>3</sup> /h]
Max. drilling flow rate	1,000 galUS/min [227.12 m <sup>3</sup> /h]

<sup>†</sup> 5/8-in casing (32.3, 36–43.5, 47–53.5 lbm/ft)