IADC Dull Grading

Cutting Structure								
Inner Rows	Outer Rows	Dull Char.	Location	Bearings/Seals	Gauge	Other Dull Char.	Reason Pulled	
0	2	3	4	5	6	1	8	

Inner Cutting Structure

(All inner rows)

2 Outer Cutting Structure

(Gauge row only) In columns 1 and 2, a linear scale from 0 to 8 is used to describe the condition of the cutting structure according to the following:

Steel Tooth Bits

A measure of lost tooth height due to abrasion and/or damage.

- 0 No loss of tooth height
- 8 Total loss of tooth height

Insert Bits

A measure of total cutting structure reduction due to lost, worn and/or broken inserts.

- 0 No lost, worn and/or broken inserts
- 8 All inserts lost, worn and/or broken

Bull Characteristics

(Use only cutting structure related codes)

- BC Broken Cone*
- BT Broken Teeth
- BU Balled Up
- CC Cracked Cone*
- CD Cone Dragged*
- CI Cone Interference
- CR Cored
- CT Chipped Teeth
- ER Erosion
- FC Flat Crested Wear
- HC Heat Checking
- JD Junk Damage
- LC Lost Cone*
- LN Lost Nozzle
- LT Lost Teeth
- NO No Dull Characteristic
- NR Not Rerunnable
- OC Off Center Wear
- PB Pinched Bit
- PN Plugged Nozzle/ Flow Passage
- RG Rounded Gauge
- RR Rerunnable
- SS Self-Sharpening Wear

4 Location

Roller Cone

- N Nose Row М -Middle Row G -
- Gauge Row A -All Rows
- Cone #
- 1
- 2
- 3
- 6 Bearings/Seals

Non-Sealed Bearings

A linear scale estimating bearing life used

- 0 No life used
- 8 All life used, i.e., no bearing life

Sealed Bearings

- E Seals effective
- F Seals failed

inch)

- 4 1/4" out of gauge

Other Dull **Characteristics**

(Refer to column 3 codes)

Run Terminated BHA - Change Bottom Hole Assembly CM - Condition Mud CP - Core Point DMF - Downhole Motor Failure DP - Drill Plug DSF - Drill String Failure DST - Drill Stem Test DTF - Downhole Tool Failure FM - Formation Change HP - Hole Problems HR - Hours on Bit LIH - Left In Hole LOG - Run Logs PP - Pump Pressure PR - Penetration Rate RIG - Rig Repair TD - Total Depth/ Casing Depth TO - Torque TW - Twist Off WC - Weather Conditions WO - Washout - Drill String

8 Reason Pulled or

* Show cone # or #'s under location 4. Cone numbers are identified as follows:

- The number one cone contains the centermost cutting element.
- Cones two and three follow in a clockwise orientation as viewed looking down at the cutting structure with the bit sitting on the pin.



Cutting Structure Wear



- - - remaining

- N Not able to grade

🚯 Gauge

(Measure in fractions of an

- 1 1/16" out of gauge
- 2 1/8" out of gauge



- I In Gauge

ROLLER CONE BITS – RING GAUGING

Dull Three Cone Bits

1 Obtain a nominal size ring gauge. A nominal ring gauge is one that is exact in size. For example, a 12-1/4-in. ring gauge is 12-1/4-in. exactly.

2 Rotate all cones so that one of the gauge teeth on each cone is at the maximum gauge point*. (Remember, soft formation bits with large offsets have the maximum gauge points on each cone located towards the leading side of the cone).

- 3 Place the ring gauge over the bit and locate it at the maximum gauge point.
- 4 Pull the ring gauge tight against the gauge points of two cones as shown.
- 6 Measure the gap between the third cone's gauge point and the ring gauge**.

() Multiply this measurement by 2/3 for accuracy. This result is the amount the bit is under gauge. In the illustration, for example, measurement shows 3/8-in., while the bit is actually 1/4-in. out of gauge.

7 Report this amount to the nearest 1/16th of an inch.

Sharp Bits

1 When ring gauging a sharp (new) roller cone bit, a nominal ring gauge may not fit over the cones due to the "plus" tolerances. Obtain the appropriate "go" and "no go" gauges for each bit size.

2 The "go" gauge is manufactured to the maximum roller cone bit tolerance (see API Standard Roller Cone Rock Bit Tolerances) plus its own tolerance +.003 to -0 inches for clearance.

3 The "no go" gauge is manufactured to the minimum roller cone bit tolerance, which is nominal bit diameter, plus its own tolerance +0- to -.003-in.

API Stand	dard Roller (Cone Bit T	olerances
Bit Size (IN.)	3-3/8 to 13-3/4	14 to 17-1/2	17-5/8 and Larger
Tolerance	+1/32, -0	+1/16, -0	+3/32, -0



© 2009 Halliburton. All rights reserved. Sales of Halliburton products and services will be in accord solely with the terms and conditions contained in the contract between Halliburton and the customer that is applicable to the sale. H03086 9/09

www.halliburton.com



Drill Bits & Services