IADC CODES
By Tim Thomas
Sponsored by Bit Brokers International
2008 & 2009

History of the IADC
- Founded in 1940 as the American Association of Oil well Drilling Contractors (AAODC)
- Promote commitment to safety, preservation of the environment and advances in drilling technology

IADC CODES
International Association of Drilling Contractors
Codes for every formation bearing design and any other design features (SHIRT TAIL, LEG, SECTION, CUTTER)

First Digit:
1, 2, and 3 designate Steel Tooth Bits with 1 for soft, 2 for medium and 3 for hard formations.
4, 5, 6, 7, and 8 designate Tungsten Carbide Insert Bits for varying formation hardness with 4 being the softest and 8 the hardest.
Second Digit:
1, 2, 3, and 4 help further breakdown the formation with 1 being the softest and 4 the hardest.

1. Standard Open Bearing Roller Bit
   3rd digit will end with 1
2. Air Bearing Roller Bit
   3rd digit will end with 2 or 3
3. Sealed Bearing Roller Bit
   3rd digit will end with 4 or 5
4. Journal Bearing Roller Bit
   3rd digit will end with 6 or 7

Third Digit:
This digit will classify the bit according to bearing/seal type and special gauge wear protection as follows:
1. Standard open bearing roller bit
2. Standard open bearing bit for air drilling only
3. Standard open bearing bit with gauge protection which is defined as carbide inserts in the heel of the cone.
4. Roller sealed bearing bit
5. Roller sealed bearing bit with carbide inserts in the heel of the cone.
6. Journal sealed bearing bit
7. Journal sealed bearing bit with carbide inserts in the heel of the cone.

Non-Sealed Roller Bearing a.k.a. Open Bearing

Air Bearing (Blast Hole)
Sealed Roller Bearing

Journal Bearing

How to Visually Identify Sealed Bearing Bits

Fitting for the grease reservoir.

How to Visually Identify Open Bearing or Air Bearing Bits

No fitting for the grease reservoir.
Tooth Bits

Soft Formation Tooth Bits
Used in shales, clays, red beds, salts, soft limestone and unconsolidated sands
PSI: 3000 – 5000 lbs of bit diameter
RPM: 120 – 90 reduce weight as RPM Increases

Soft to Medium Formation Tooth Bits
Used in firm shale, anhydrite, salts, soft limestone and unconsolidated sands
PSI: 3500 – 6000 lbs of bit diameter
RPM: 100 – 60 reduce weight as RPM Increases

Medium Formation Tooth Bits
For use in hard shales, sandstones, and limestones
PSI: 4000 – 8000 lbs. of bit diameter
RPM: 100 – 40 reduce weight as RPM Increases
**Hard Formation Tooth Bits**

For use in hard sands, cherty limestone, dolomite, chert.

PSI: 4500 – 8000 lbs of bit diameter

RPM: 80 – 45 reduce weight as RPM Increases

J7 IADC 316

**Very Hard Formation Tooth Bits**

Used in chert, quartzite, pyrite, granite, and hard sandstone.

PSI: 6000 – 8000 lbs of bit diameter

RPM: 70 – 50 reduce weight as RPM Increases

J8 IADC 346

**Tooth Bits**

J3 IADC 325

J2 IADC 325

J1 IADC 316

J4 IADC 327

J5 IADC 326

J6 IADC 326

**Button Bits (TCI)**

C1 IADC 427

C17 IADC 447

C27 IADC 527

C47 IADC 627

C7 IADC 737

C9 IADC 837

**Very Soft Formation TCI Bits**

Used in shale, sand, red bed, clay, salt, and soft limestone.

PSI: 1500 – 4000 lbs of bit diameter

RPM: 180 – 60 reduce weight as RPM Increases

C1 IADC 427
**Very Soft Formation TCI Bits**

Used in shale, sand, red bed, clay, salt, and limestone

PSI: 2000 – 5000 of bit diameter

RPM: 160 - 60 reduce weight as RPM increases

C17 IADC 447

---

**Soft Formation TCI Bits**

Used in shale, clay, red bed, salt, sand, soft limestone and soft anhydrite

PSI: 2000 - 5000 lbs of bit diameter

RPM: 140 - 60 reduce weight as RPM increases

C27 IADC 527

---

**Medium Hard Formation TCI Bits**

Used in hard limestone, dolomite, and gypsum

PSI: 3000 - 6000 of bit diameter

RPM: 75 - 40 reduce weight as RPM increases

C47 IADC 627

---

**Hard Formation TCI Bits**

Used in sandy shale, limestone, dolomite, chert, and hard, sharp sands

PSI: 3000 - 6500 lbs of bit diameter

RPM: 60 - 35 reduce weight as RPM increases

C7 IADC 737

---

**Very Hard Formation TCI Bits**

Used in high strength abrasive formations: sand, chert, quartzite, pyrite, granite and quartzitic

PSI: 5000 - 6500 of bit diameter

RPM: 60 - 35 reduce weight as RPM increases

C9 IADC 837

---

**Button Bits (TCI)**

C1 IADC 427, C17 IADC 447, C27 IADC 527, C47 IADC 627, C7 IADC 737, C9 IADC 837
IADC Reference Code

Fourth Digit/Additional Letter:

Example 111 C

The following letter codes are used in the fourth digit position to indicate additional features:

- A -- Air application
- B -- Special Bearing Seal
- C -- Center Jet
- D -- Deviation Control
- E -- Extended Jets
- G -- Extra Gauge Protection
- H -- Horizontal Application
- J -- Jet Deflection
- L -- Lug Pads
- M -- Motor Application
- R -- Reinforced Welds
- S -- Standard Tooth Bit
- T -- Two Cone Bits
- W -- Enhanced Cutting Structure
- X -- Chisel Insert
- Y -- Conical Insert
- Z -- Other Insert Shape

Optional Features

For finding the right IADC code go to www.bitbrokers.com/iadc-calculator.php

IADC Calculator

For finding the right IADC code go to www.bitbrokers.com/iadc-calculator.php
For finding the right IADC code go to www.bitbrokers.com/iadc-calculator.php

IADC Reference Codes For PDC Bits

- Uses 4 characters to classify the bit.
  - body material
  - cutter density
  - cutter size or type
  - profile

PDC BIT CUTTERS

First Character:
Denotes the body material
- M for Matrix
- S for Steel

Second Character:
Stands for the amount of ½ in. cutters
- Ranges 1 to 4 in PDC bits
- 1 = 30 or fewer ½ in. cutters
- 2 = 30 to 40 ½ in. cutters
- 3 = 40 to 50 ½ in. cutters
- 4 = 50 or more ½ in. cutters

Third Character:
Ranges from 1-4 and represents the size of the PDC cutter on the bit
- 1 = cutters larger than 1 in.
- 2 = cutters from 9/16 in. to 1 in.
- 3 = cutters of 1/2 in.
- 4 = cutters of 5/16 in.
IADC Reference Codes For PDC Bits

**M 1 1 1**

Fourth Character
Ranges 1 to 4 and gives an idea of basic appearance of and body style of the bit, based on the overall length of the cutting face of the bit.
- 1 = fishtail PDC Bit
- 2 = short bit profile
- 3 = medium bit profile
- 4 = long bit profile

Hole Openers

Custom-built Hole Openers

**Options for Hole Openers:**
- Tooth or TCI Cutter
- Sealed or open bearing
- Standard or reverse circulation
- New, Surplus or Rebuilt Cutters

Cutters

For more information about drill bit selection please visit:

www.bitbrokers.com