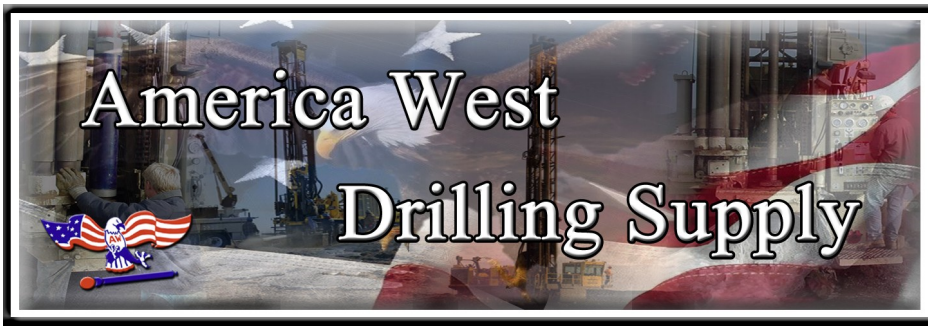

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IADC Codes

(International Association of Drilling Contractors)

The IADC bit classification uses 3 primary digits to classify the bit according to the Formation it is designed to drill in, the Hardness of the teeth, and the Bearing and/or Seal design used.

1st Digit

STEEL TOOTH BITS 1 - 3

1 = SOFT
2 = MEDIUM
3 = HARD

TUNGSTEN CARBIDE TCI BITS 4 - 8

4 = VERY SOFT
5 = SOFT
6 = MEDIUM
7 = HARD
8 = VERY HARD

2nd Digit

1 – 4

1 = SOFTEST
4 = HARDEST

3rd Digit

BEARING / SEAL / GAUGE WEAR

1 = Standard Open Bearing Roller Bit with Fluid Circulation.
2 = Standard Open bearing Roller Bit for AIR drilling only.
3 = Standard Open Bearing Roller Bit with gauge protection inserts. *
4 = Ball & Roller Sealed Bearing with Fluid Circulation.
5 = Ball & Roller Sealed Bearing with gauge protection inserts. *
6 = Journal Sealed Bearing.
7 = Journal Sealed Bearing with gauge protection inserts. *

* Gauge protection inserts are defined as TCI inserts in the heel of the cone or in the Shirttail.

4th Digit

The fourth digit letter code is used to indicate additional features.

A = Air application.
R = Reinforced welds.
C = Center jet.
S = Standard steel tooth.
D = Deviation control.
X = Chisel insert.
E = Extended jet.
Y = Conical insert.
G = Extra gage protection.
Z = Other insert shape.
J = Jet deflection.

Bearing Types:

There are primarily four (4) common types of bearing designs used in tricone bits.

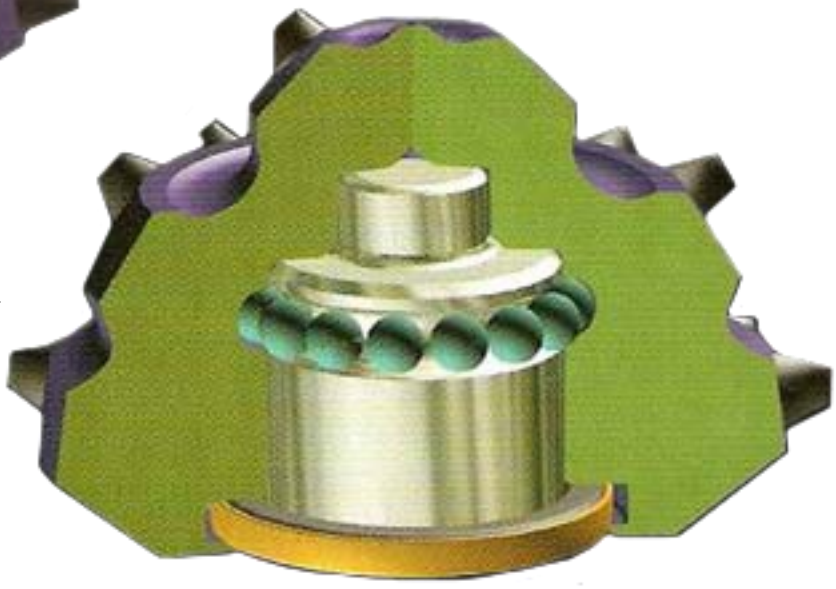
Standard Open Bearing Roller Bit: This type of bit has a front row of ball bearings and a back row of roller bearing that allows the cones to spin freely.

Standard Open Bearing Roller Bit for Air Drilling: Similar to above but have air injection directly into the cones, through passageways inside the pin, to cool the bearings. (Not for mud applications.)

Sealed Bearing Roller Bits: This type of bit has O-ring seals and grease reservoirs to cool the bearings. The seals act as a mud and cuttings barrier protecting the bearings.

Journal Bearing Roller Bits: This type of bit is strictly oil/grease cooled with nose bearings, O-ring seals and races for maximum performance.

Open Bearing



Journal Bearing