

# PRODUCT MANUAL

## TUNGSTEN CARBIDE INSERT DRAG BIT



(License Number : 7-0463)

**KHALSA OIL FIELD EQUIPMENTS PVT LTD.**

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## **CONSTRUCTION FEATURES OF BITS**

The Company having been established for 30 years as one of the India's largest manufacturers of drag bits, can supply you with any type of drag bit you could possibly need.

The proof of product is in its consistent performance. Products used under diverse geological conditions, has made it a time-tested drill bit for soft drilling, hard drilling, mining, water well and seismic operations and Cement Drilling.

Penetration and wear are the two key elements of consistent drilling. Our tough quality control standards are your assurance against undue delays and downtime and all products are 100% made in India

Over the years, we have been able to improve our quality and service while cutting the cost of product that we pass along to our customers.

## **FEATURES OF OUR CARBIDE INSERT DRAG BITS**

- Behind carbide inserts relief is hand ground for maximum performance.
- Carbide inserts are individually BRAZED using 50% nickel silver alloy.
- Bits we fabricate are welded with high tensile strength 7016 rod.
- Our blades originate from 4140 heat-treated steel forgings.
- Forgings are milled to better seat the carbide inserts
- Select grade tungsten Carbide inserts 4mm thick are used
- Bits are built to the gauge tolerances.

## TYPES OF BITS WITH PHOTOS



**STEP TYPE 3 WING BITS**



**STEP TYPE BIT WITH N-ROD THREADS**



**STEP TYPE BIT WITH 2- 3/8" API-REG THREADS**



**CHEVRON BITS WITH 2- 3/8" API-REG THREADS**



**STEP TYPE COMBINATION BIT  
PILOT AND REAMER  
(NO STANDARD SIZE MADE TO ORDER)**



**LARGE BIT WITH 3 1/2" API THREADS**

## DETAILS OF BIT : STEP TYPE

(Non API)

<b>BIT SIZE INCHES</b>	<b>THREAD PIN</b>	<b>NO OF BLADES</b>
2-3/4"	N-Rod	STEP TYPE THREE / FOUR
3"	N-Rod	STEP TYPE THREE / FOUR
3-1/4"	N-Rod	STEP TYPE THREE / FOUR
3-1/2"	N-Rod	STEP TYPE THREE / FOUR
4-1/4"	2-3/8" REG API	STEP TYPE THREE / FOUR
4-1/2"	2-3/8" REG API	STEP TYPE THREE / FOUR
4-3/4"	2-3/8" REG API	STEP TYPE THREE / FOUR
5"	2-3/8" REG API	STEP TYPE THREE / FOUR
5-1/2"	2-3/8" REG API	STEP TYPE THREE / FOUR
6"	2-3/8" REG API	STEP TYPE THREE / FOUR
6-1/2"	2-3/8" REG API	STEP TYPE THREE / FOUR
6-3/4"	2-3/8" REG API	STEP TYPE THREE / FOUR
7"	3 1/2" REG API	STEP TYPE THREE / FOUR
7-1/2"	3 1/2" REG API	STEP TYPE THREE / FOUR
7-3/4"	3 1/2" REG API	STEP TYPE THREE / FOUR

## DETAILS OF BIT : CHEVRON TYPE

<b>BIT SIZE INCHES</b>	<b>THREAD PIN API REG</b>	<b>NO OF BLADES</b>
4-1/4"	2-3/8" REG API	CHEV TYPE THREE / FOUR
4-1/2"	2-3/8" REG API	CHEV TYPE THREE / FOUR
4-3/4"	2-3/8" REG API	CHEV TYPE THREE / FOUR
5"	2-3/8" REG API	CHEV TYPE THREE / FOUR
5-1/2"	2-3/8" REG API	CHEV TYPE THREE / FOUR

6"	2-3/8" REG API	CHEV TYPE THREE / FOUR
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**PACKING CASES AND WEIGHT INFORMATION FOR DRAG BITS**

<b>Bit Dia inches</b>	<b>Wt each kg</b>	<b>No of pcs/ Box</b>	<b>Total Net wt/ boxkg</b>	<b>Total Gross Wt./ box kg</b>	<b>Packing box outer size meters</b>	<b>Packing box vol cubic. mtr. each</b>
Step 5"	3.2	10	32	45	.74 x .35 x .25	.065
Step 5¼"	3.4	10	34	47	.74 x .35 x .25	.065
Step 5½"	3.5	10	35	48	.74 x .35 x .25	.065
Step 5-7/8"	3.6	10	36	53.6	.84 x .42 x .25	.088
Step 6"	3.7	10	37	54.6	.84 x .42 x .25	.088
Step 6½"	3.8	10	38	55.6	.84 x .42 x .25	.088
Step 6¾"	3.9	10	39	56.6	.84 x .42 x .25	.088
Step 7-3/8"	11.0	05	55	73.6	.60 x .47 x .33	.093
Chev 5½"	4.5	10	45	58	.74 x .35 x .25	.065
Chev 4½"	4.0	10	40	53	.74 x .35 x .25	.065

# API CERTIFICATE



**American  
Petroleum  
Institute**



## Certificate of Authority to use the Official API Monogram

License Number: 7-0463

ORIGINAL

The American Petroleum Institute hereby grants to

### **KHALSA OIL FIELD EQUIPMENT PVT. LTD.**

46 Ballapur Road  
Dehra Dun, Uttaranchal  
India

the right to use the Official API Monogram® on manufactured products under the conditions in the official publications of the American Petroleum Institute entitled API Spec Q1® and API Spec 7 and in accordance with the provisions of the License Agreement.

In all cases where the Official API Monogram is applied, the API Monogram should be used in conjunction with this certificate number: 7-0463

The American Petroleum Institute reserves the right to revoke this authorization to use the Official API Monogram for any reason satisfactory to the Board of Directors of the American Petroleum Institute.

**The scope of this license includes the following product:** Blade Drag Bits

No Exclusions are Identified as Applicable to this Quality Management System

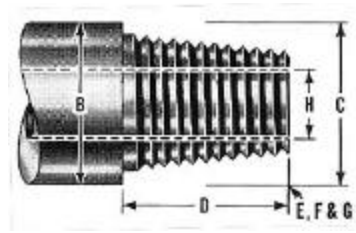
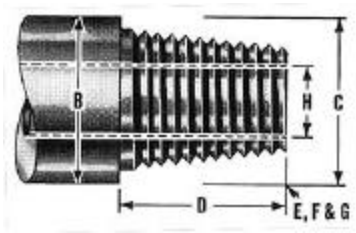
Effective Date: JANUARY 10, 2005  
Expiration Date: JANUARY 10, 2008

American Petroleum Institute

Director of Certification Programs

To verify the authenticity of this license, go to [www.api.org/compositeist](http://www.api.org/compositeist).

# TOOL JOINT THREADS – 1



A - Nominal Pipe Size	B - Outside Diameter of Tool Joint		C - Major Thread Diameter or Diameter at Shoulder					
D - Length of Pin	E - Threads per Inch	F - Taper per Foot	G - Threaded Form		H - Tool Joint Bore			
Name	A	B	C	D	E	F	G	H
<b>TOOL JOINTS:<sup>1</sup></b>								
2 <sup>3</sup> / <sub>8</sub> API Regular	2 <sup>3</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>8</sub>	2 <sup>5</sup> / <sub>8</sub>	3	5	3	60° API	1
2 <sup>7</sup> / <sub>8</sub> API Regular	2 <sup>7</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>4</sub>	3	3 <sup>1</sup> / <sub>2</sub>	5	3	60° API	1 <sup>1</sup> / <sub>4</sub>
3 <sup>1</sup> / <sub>2</sub> API Regular	3 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>2</sub>	3 <sup>3</sup> / <sub>4</sub>	5	3	60° API	1 <sup>1</sup> / <sub>2</sub>
4 <sup>1</sup> / <sub>2</sub> API Regular	4 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>2</sub>	4 <sup>5</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>4</sub>	5	3	60° API	2 <sup>1</sup> / <sub>4</sub>
2 <sup>3</sup> / <sub>8</sub> API Internal Flush	2 <sup>3</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>8</sub>	2 <sup>7</sup> / <sub>8</sub>	3	4	2	60° API	1 <sup>3</sup> / <sub>4</sub>
2 <sup>7</sup> / <sub>8</sub> API Internal Flush	2 <sup>7</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>8</sub>	3 <sup>25</sup> / <sub>64</sub>	3 <sup>1</sup> / <sub>2</sub>	4	2	60° API	2 <sup>1</sup> / <sub>8</sub>
3 <sup>1</sup> / <sub>2</sub> API Internal Flush	3 <sup>1</sup> / <sub>2</sub>	4 <sup>3</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>64</sub>	4	4	2	60° API	2 <sup>11</sup> / <sub>16</sub>
2 <sup>3</sup> / <sub>8</sub> Mayhew Junior	2 <sup>3</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>4</sub>	2 <sup>21</sup> / <sub>64</sub>	2 <sup>1</sup> / <sub>4</sub>	4	2	60° Mod. API	1 <sup>1</sup> / <sub>2</sub>
2 <sup>3</sup> / <sub>8</sub> Mayhew Regular	2 <sup>3</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>4</sub>	2 <sup>35</sup> / <sub>64</sub>	3	4	1 <sup>1</sup> / <sub>2</sub>	60° Mod. API	1 <sup>5</sup> / <sub>8</sub>
2 <sup>7</sup> / <sub>8</sub> Mayhew Full Hole	2 <sup>7</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>64</sub>	3 <sup>3</sup> / <sub>8</sub>	4	1 <sup>1</sup> / <sub>2</sub>	60° Mod. API	2
2 <sup>3</sup> / <sub>8</sub> Failing Exploration	2 <sup>3</sup> / <sub>8</sub>	2 <sup>31</sup> / <sub>32</sub>	2 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>4</sub>	4	2	60° Mod. API	1 <sup>1</sup> / <sub>2</sub>
2 <sup>7</sup> / <sub>8</sub> Failing Exploration	2 <sup>7</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>4</sub>	4	2	60° Mod. API	1 <sup>7</sup> / <sub>8</sub>
2 <sup>3</sup> / <sub>8</sub> Hughes Acme Regular	2 <sup>3</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>8</sub>	2 <sup>19</sup> / <sub>32</sub>	3	4	3 <sup>3</sup> / <sub>8</sub>	29° Acme	1
2 <sup>3</sup> / <sub>8</sub> Winter Weiss	2 <sup>3</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>4</sub>	2 <sup>35</sup> / <sub>64</sub>	3	4	1 <sup>1</sup> / <sub>2</sub>	60° Mod. API	1 <sup>1</sup> / <sub>2</sub>
2 <sup>7</sup> / <sub>8</sub> Winter Weiss	2 <sup>7</sup> / <sub>8</sub>	3 <sup>7</sup> / <sub>16</sub>	2 <sup>35</sup> / <sub>64</sub>	3	4	1 <sup>1</sup> / <sub>2</sub>	60° Mod. API	1 <sup>1</sup> / <sub>2</sub>
3 <sup>1</sup> / <sub>2</sub> API Full Hole	3 <sup>1</sup> / <sub>2</sub>	4 <sup>5</sup> / <sub>8</sub>	4	3 <sup>3</sup> / <sub>4</sub>	5	3	60° Mod. API	2 <sup>7</sup> / <sub>16</sub>
<b>FLUSH JOINT TAPERED THREAD<sup>2</sup></b>								
United Geophysical (1 <sup>11</sup> / <sub>16</sub> OD)	1 <sup>11</sup> / <sub>16</sub>	1 <sup>11</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>8</sub>	1	6	3	29° Acme	1

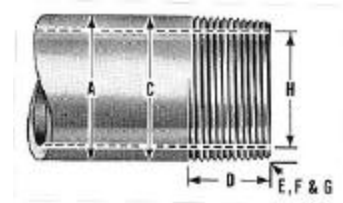
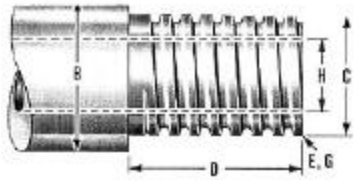
<sup>1</sup>Pipe diameter smaller than joint diameter.

<sup>2</sup>Pipe diameter same as joint diameter.

Dimension B for API Tool Joints is standard. Optional larger diameters are common in oilfield practices.



## TOOL JOINT THREADS – 2



Name	A	B	C	D	E	F	G	H
FLUSH JOINT STRAIGHT THREAD <sup>3</sup>								
E-Rod <sup>4</sup>	1 <sup>5</sup> / <sub>16</sub>	1 <sup>5</sup> / <sub>16</sub>	1	1½	3		Sq. Thd.	7 <sup>7</sup> / <sub>16</sub>
EW-Rod <sup>4*</sup>	1 <sup>3</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>16</sub>	1 <sup>9</sup> / <sub>16</sub>	3		Sq. Thd.	7 <sup>7</sup> / <sub>16</sub>
A-Rod <sup>4</sup>	1 <sup>5</sup> / <sub>8</sub>	1 <sup>5</sup> / <sub>8</sub>	1 <sup>17</sup> / <sub>64</sub>	1¾	3		Sq. Thd.	9 <sup>9</sup> / <sub>16</sub>
AW-Rod <sup>4*</sup>	1¾	1¾	1 <sup>3</sup> / <sub>8</sub>	1 <sup>7</sup> / <sub>8</sub>	3		Sq. Thd.	5 <sup>5</sup> / <sub>8</sub>
B-Rod <sup>4</sup>	1 <sup>29</sup> / <sub>32</sub>	1 <sup>29</sup> / <sub>32</sub>	1 <sup>13</sup> / <sub>32</sub>	1 <sup>7</sup> / <sub>8</sub>	5		Sq. Thd.	5 <sup>5</sup> / <sub>8</sub>
BW-Rod <sup>4*</sup>	2 <sup>1</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>8</sub>	1 <sup>11</sup> / <sub>16</sub>	2¼	3		Sq. Thd.	¾
N-Rod <sup>4</sup>	2 <sup>3</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>8</sub>	1 <sup>7</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>8</sub>	4		Sq. Thd.	1
NW-Rod <sup>4*</sup>	2 <sup>5</sup> / <sub>8</sub>	2 <sup>5</sup> / <sub>8</sub>	2 <sup>7</sup> / <sub>32</sub>	2¾	3		Sq. Thd.	1 <sup>3</sup> / <sub>8</sub>
Carey Modified 3-Thd.	2 <sup>3</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>16</sub>	2 <sup>3</sup> / <sub>8</sub>	3		Sq. Thd.	1½
N-Rod Failing Type	2 <sup>3</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>8</sub>	1 <sup>7</sup> / <sub>8</sub>	2¾	3		Sq. Thd.	1 <sup>1</sup> / <sub>8</sub>
Petty Geophysical	1½	1½	1¼	1 <sup>9</sup> / <sub>16</sub>	6		Sq. Thd.	¾
API LINE PIPE								
1" Line Pipe	1 <sup>5</sup> / <sub>16</sub>		1 <sup>5</sup> / <sub>16</sub>	63 <sup>63</sup> / <sub>64</sub>	11½	¾	60° Vee Thd.	1 <sup>3</sup> / <sub>64</sub>
1¼ Line Pipe	1 <sup>21</sup> / <sub>32</sub>		1 <sup>21</sup> / <sub>32</sub>	1	11½	¾	60° Vee Thd.	1 <sup>3</sup> / <sub>8</sub>
1½ Line Pipe	1 <sup>29</sup> / <sub>32</sub>		1 <sup>29</sup> / <sub>32</sub>	1 <sup>1</sup> / <sub>32</sub>	11½	¾	60° Vee Thd.	1 <sup>39</sup> / <sub>64</sub>
2 Line Pipe	2 <sup>3</sup> / <sub>8</sub>		2 <sup>3</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>16</sub>	11½	¾	60° Vee Thd.	2 <sup>1</sup> / <sub>16</sub>
2½ Line Pipe	2 <sup>7</sup> / <sub>8</sub>		2 <sup>7</sup> / <sub>8</sub>	1 <sup>9</sup> / <sub>16</sub>	8	¾	60° Vee Thd.	2 <sup>15</sup> / <sub>32</sub>
3 Line Pipe	3½		3½	1 <sup>5</sup> / <sub>8</sub>	8	¾	60° Vee Thd.	3 <sup>1</sup> / <sub>16</sub>

<sup>3</sup>Pipe diameter same as joint diameter.

<sup>4</sup>American Diamond Core Drill Standards.

\*American Standards Show 5 Modified Thread.

## DETAILS OF BIT : STEP TYPE

(As per API spec-7)

<b>BIT SIZE INCHES</b>	<b>THREAD PIN</b>	<b>NO OF BLADES</b>
4-1/4"	2-3/8" REG API	STEP TYPE THREE / FOUR
4-1/2"	2-3/8" REG API	STEP TYPE THREE / FOUR
4-3/4"	2-7/8" REG API	STEP TYPE THREE / FOUR
5"	2-7/8" REG API	STEP TYPE THREE / FOUR
5-1/2"	3-1/2" REG API	STEP TYPE THREE / FOUR
6"	3-1/2" REG API	STEP TYPE THREE / FOUR
6-1/2"	3-1/2" REG API	STEP TYPE THREE / FOUR
6-3/4"	3-1/2" REG API	STEP TYPE THREE / FOUR
7"	3-1/2" REG API	STEP TYPE THREE / FOUR
7-1/2"	4-1/2" REG API	STEP TYPE THREE / FOUR
7-3/4"	4-1/2" REG API	STEP TYPE THREE / FOUR

## DETAILS OF BIT : CHEVRON TYPE

<b>BIT SIZE INCHES</b>	<b>THREAD PIN API REG</b>	<b>NO OF BLADES</b>
4-1/4"	2-3/8" REG API	CHEV TYPE THREE / FOUR
4-1/2"	2-3/8" REG API	CHEV TYPE THREE / FOUR
4-3/4"	2-7/8" REG API	CHEV TYPE THREE / FOUR
5"	2-7/8" REG API	CHEV TYPE THREE / FOUR
5-1/2"	2-7/8" REG API	CHEV TYPE THREE / FOUR
6"	2-7/8" REG API	CHEV TYPE THREE / FOUR