NORTHWELL
OILFIELD EQUIPMENT RENTAL

VICON ROCK BIT COMPANY
API Q1/ISO 9001:2000 REGISTERED

VICON TWISTER

ONE PIECE STEEL BODY BIT
Precision machined from 4140HT Steel.
5 1/2" Circulation Ports for Mud Motor or Power Swivel.

CUTTING STRUCTURE

The Twister **features specially designed modified chisel type carbide inserts.** ***Tried and proven for drilling:***

- ☑ CEMENT
- ☑ COMPOSITE & CAST IRON PLUGS
- ☑ BRIDGE PLUGS
- ☑ FLOAT SHOES
- ☑ CEMENT RETAINERS

In Addition, flat TCI (Carbide) Gage Inserts are featured for increased wear resistance.

SIZES AVAILABLE

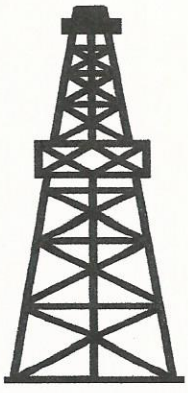
3 3/4" • 3 7/8" • 3.965" • 4 3/4" • 4 7/8" • 5 7/8"
6" • 6 1/8" • 6 1/4"

PRODUCT SPECIFICATIONS - 3 7/8" TWISTER

Pin Connection	2 3/8 API Reg. Pin
Insert Type	.4375 Modified Chisel TCI Inserts
Total Number of Inserts	27
Fluid Ports	5 16/32 Fixed Ports

RECOMMENDED PARAMETERS

WOB	4,000 to 6,000 lbs.
RPM	Rig 80 to 100 Motor - up to 400



VICON ENT.
OILFIELD SERVICES

Office: Box 192, Bellevue, SK S0K 3Y0
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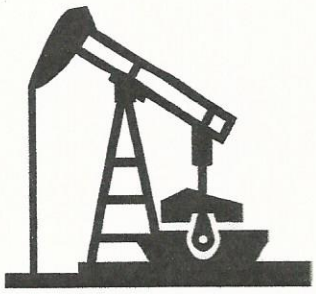


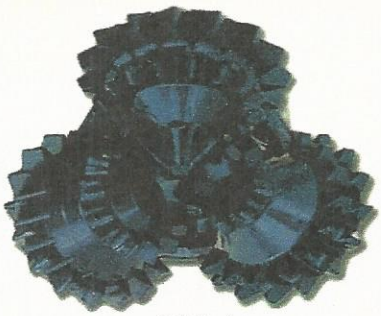
VICON Vintage RACING

Workover Bits, P.D.C.'s, Bladebit Bits,
All Your Drilling Needs!

VICON ROCK BIT AVAILABILITY CHARTS

TR 3

TR 2



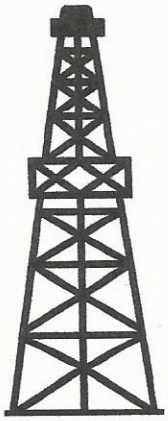
TR 1

TR 1H

STEEL TOOTH TYPE ROCK BITS

SIZE	STANDARD PIN SIZE	BICONE	TRICONE	MODEL & IADC CODE RANGE			
				TR3	TR2	TR1	TR1H
				111-131	211-231	311	321
1 7/8"	A - AW ROD	●			●		
1 15/16"	A - AW ROD	●			●		
2"	A - AW ROD	●			●		
2 1/8"	A - AW ROD	●			●		
2 1/4"	A - AW ROD	●			●		
2 3/8"	A - AW ROD	●			●		
2 1/2"	A - AW ROD & 4 THD N ROD	●	●		●		
2 5/8"	A - AW ROD & 4 THD N ROD	●	●		●		
2 3/4"	A - AW ROD & 4 THD N ROD		●		●		
2 7/8"	4 THD N ROD		●		●		●
2 15/16"	4 THD N ROD		●		●		●
3"	4 THD N ROD		●		●		●
3 1/8"	4 THD N ROD		●		●		●
3 1/4"	4 THD N ROD		●		●		●
3 1/2"	2 3/8" API		●	●	●	●	●
3 5/8"	2 3/8" API		●	●	●	●	●
3 3/4"	2 3/8" API		●	●	●	●	●
3 7/8"	2 3/8" API		●	●	●	●	●
4"	2 3/8" API		●	●	●	●	●
4 1/8"	2 3/8" API		●	●	●	●	●
4 1/4"	2 3/8" API		●	●	●	●	●
4 3/8"	2 3/8" API		●	●	●	●	●
4 1/2"	2 3/8" API		●	●	●	●	●
4 5/8"	2 7/8" API		●	●	●	●	●
4 3/4"	2 7/8" API		●	●	●	●	●
4 7/8"	2 7/8" API		●	●	●	●	●
5"	2 7/8" API		●	●	●	●	●
5 1/8"	2 7/8" API		●	●	●	●	●
5 1/4"	2 7/8" API		●	●	●	●	●
5 1/2"	2 7/8" API		●	●	●	●	●
5 5/8"	3 1/2" API		●	●	●	●	●
5 3/4"	3 1/2" API		●	●	●	●	●
5 7/8"	3 1/2" API		●	●	●	●	●
6"	3 1/2" API		●	●	●	●	●
6 1/8"	3 1/2" API		●	●	●	●	●
6 1/4"	3 1/2" API		●	●	●	●	●
6 1/2"	3 1/2" API		●	●	●	●	●
6 5/8"	3 1/2" API		●	●	●	●	●
6 3/4"	3 1/2" API		●	●	●	●	●
7 3/8"	3 1/2" API		●	●	●	●	●
7 5/8"	4 1/2" API		●	●	●	●	●
7 7/8"	4 1/2" API		●	●	●	●	●
8 3/8"	4 1/2" API		●	●	●	●	●
8 1/2"	4 1/2" API		●	●	●	●	●
8 3/4"	4 1/2" API		●	●	●	●	●

All models listed above are also available in designs for use in air circulation systems. When ordering, please specify the type of circulation system to be used. Available in regular circulation or jet circulation with replaceable nozzles.



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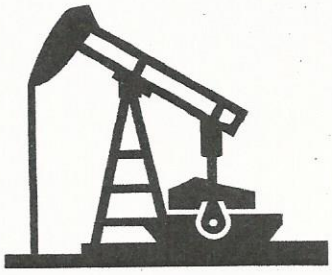

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Nozzle Sizes		
32s	mm	Area (mm2)
8	6.4	32.2
9	7.1	39.6
10	7.9	49.0
11	8.7	59.4
12	9.5	70.9
13	10.3	83.3
14	11.1	96.8
15	11.9	111.2
16	12.7	126.7
18	14.3	160.6
20	15.9	198.6
22	17.5	240.5
24	19	283.5
28	22.1	383.6
32	25.4	506.7

Approximate Bit Weights (lbs.)		
Size	Milled Tooth	TCI
3 1/2 - 3 7/8	10	12
4 3/4	15	20
5 7/8 - 6 1/4	35	45
6 1/2 - 6 3/4	45	55
7 3/8 - 8	75	85
8 1/8 - 8 5/8	90	95
9 1/2 - 9 7/8	135	145
10 - 10 5/8	165	175
11 - 11 7/8	195	210
12 - 12 1/4	205	225
13 1/4 - 15	345	380
16	410	450
17 1/2	515	545
18 1/2	525	570
24	1,385	1,400
26	1,450	1,550

Pin Connection	
Bit Sizes (mm)	Connections
98.4 / 114.3	2 3/8 Reg.
117.5 / 130.0	2 7/8 Reg.
149.2 / 171.4	3 1/2 Reg.
200.0 / 222.2	4 1/2 Reg.
241.3 / 368.3	6 5/8 Reg.
374.6 / 508.0	6 5/8 or 7 5/8 Reg.
558.8 / 711.2	7 5/8 or 8 5/8 Reg.

Common Bit Sizes			
Inches	Millimeters	Inches	Millimeters
1 7/8	47.6	6 1/4	158.8
1 15/16	49.2	6 3/8	161.9
2	50.8	6 1/2	165.1
2 1/8	54.0	6 5/8	168.3
2 1/4	57.2	6 3/4	171.5
2 3/8	60.3	7 3/8	187.3
2 1/2	63.5	7 5/8	193.7
2 5/8	66.7	7 3/4	196.9
2 3/4	69.9	7 7/8	200.0
2 7/8	73	8 3/8	212.7
2 15/16	74.6	8 1/2	215.9
3	76.2	8 5/8	219.1
3 1/8	79.4	8 3/4	222.3
3 1/4	82.6	9	228.6
3 3/8	85.7	9 1/2	241.3
3 1/2	88.9	9 5/8	244.5
3 5/8	92.1	9 7/8	250.8
3 3/4	95.3	10 5/8	269.9
3 7/8	98.4	11	279.4
4 1/8	104.8	12	304.8
4 1/4	108.0	12 1/4	311.2
4 1/2	114.3	13 1/2	342.9
4 5/8	117.5	13 3/4	349.3
4 3/4	120.7	14 1/4	362.0
4 7/8	123.8	14 3/8	365.1
5	127.0	14 3/4	374.7
5 1/8	130.2	15	381.0
5 1/4	133.4	15 3/8	390.5
5 3/8	136.5	16	406.4
5 1/2	139.7	17	431.8
5 5/8	142.9	17 1/2	444.5
5 3/4	146.1	18 1/2	469.9
5 7/8	149.2	20	508.0
6	152.4	24	609.6
6 1/8	155.6	26	660.4

Recommended Torque		
Pin Size (in)	Min / Max (Ft / lbs)	Min / Max (N / m)
2 3/8	3,000 / 3,500	4,000 / 4,800
2 7/8	6,000 / 7,000	8,000 / 9,500
3 1/2	7,000 / 9,000	9,500 / 12,000
4 1/2	12,000 / 16,000	16,000 / 22,000
6 5/8	28,000 / 32,000	38,000 / 43,000
7 5/8	34,000 / 40,000	46,000 / 54,000
8 5/8	40,000 / 60,000	54,000 / 81,000

TFA of Jet Nozzles				
32's	1 jet	2 jets	3 jets	4 jets
7	0.038	0.076	0.114	0.152
8	0.049	0.098	0.147	0.196
9	0.062	0.124	0.186	0.249
10	0.077	0.153	0.230	0.307
11	0.093	0.186	0.278	0.371
12	0.110	0.221	0.331	0.442
13	0.130	0.259	0.389	0.518
14	0.150	0.300	0.450	0.600
15	0.172	0.344	0.516	0.688
16	0.196	0.392	0.588	0.784
18	0.249	0.498	0.747	0.996
20	0.307	0.613	0.921	1.228
22	0.371	0.742	1.113	1.484
24	0.441	0.883	1.325	1.767

How to Read the 4 Character I.A.D.C. Code

Character 1: Formation Hardness

1-3: Tooth Bits 4-8: Insert Bits

Character 2: Hardness Within Class

Example 1-1 is softer than 1-2.

Character 3: Bearing Type

1. Standard Roller Bearing, No Seal
2. Roller Bearing, Air Cooled, No Seal
3. Roller Bearing, Gauge Protected, No Seal
4. Sealed Roller Bearing
5. Sealed Roller Bearing, Gauge Protected
6. Sealed Friction Bearing
7. Sealed Friction Bearing, Gauge Protected

Character 4: Additional Design Features

A. Air Application
C. Center Jet
D. Deviation Control
E. Extended Jets
G. Extra Gauge / Body Protection
J. Jet Deflection
R. Reinforced Welds
S. Standard Steel Tooth Model
X. Chisel Inserts
Y. Conical Inserts
Z. Other Insert Shapes

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API CASING DATA, SHOWING BIT SIZES AND CLEARANCES

Casing Specification								Bit Sizes & Diametrical Clearance			
				Wt. Per Ft. With		Inside Diameter of		Bits		Clearance	
Casing Size O.D. (inches)	mm	Drift inches	Drift mm	Couplings (pounds)	Kg/m	Casing (inches)	mm	Bit Size (inches)	mm	Thousandths	Nearest 64th
4 1/2	114.3	3.965	100.7	9.50	14.14	4.090	103.8	3 7/8	98.4	.215	7/32
4 1/2	114.3	3.875	98.43	11.60	17.26	4.000	101.6	3 7/8	98.4	.125	1/8
4 1/2	114.3	3.795	96.39	13.50	20.09	3.920	99.5	3 3/4	95.2	.170	11/64
5	127.0	4.435	112.6	11.50	17.11	4.560	115.8	4 1/4	108.0	.310	5/16
5	127.0	4.369	111.0	13.00	19.34	4.494	114.1	4 1/4	108.0	.244	1/4
5	127.0	4.283	108.8	15.00	22.32	4.408	111.9	4 1/4	108.0	.158	5/32
5	127.0	4.151	105.4	18.00	26.78	4.276	108.6	4 1/8	104.8	.151	5/32
5 1/2	139.7	4.919	125.2	13.00	19.34	5.044	128.1	4 3/4	120.6	.294	19/64
5 1/2	139.7	4.887	124.1	14.00	20.83	5.012	127.3	4 3/4	120.6	.262	17/64
5 1/2	139.7	4.825	122.0	15.50	23.06	4.950	125.7	4 3/4	120.6	.200	13/64
5 1/2	139.7	4.767	121.1	17.00	25.30	4.892	124.2	4 3/4	120.6	.142	9/64
5 1/2	139.7	4.653	118.2	20.00	29.76	4.778	121.3	4 5/8	117.5	.153	5/32
5 1/2	139.7	4.545	115.7	23.00	34.22	4.670	118.6	4 1/2	114.3	.170	11/64
6	152.4	-	-	15.00	22.32	5.524	140.3	5 3/8	136.5	.149	5/32
6	152.4	-	-	18.00	26.78	5.424	137.7	5 1/8	130.2	.299	19/64
6	152.4	5.227	132.8	20.00	29.76	5.352	135.9	5 1/8	130.2	.227	15/64
6	152.4	-	-	23.00	34.72	5.240	133.0	5 1/8	130.2	.115	7/64
6 5/8	168.3	-	-	17.00	25.30	6.135	155.8	6	152.4	.135	9/64
6 5/8	168.3	5.924	150.5	20.00	29.76	6.049	153.6	5 7/8	149.2	.174	11/64
6 5/8	168.3	5.796	147.2	24.00	35.71	5.921	150.3	5 5/8	142.9	.296	19/64
6 5/8	168.3	5.666	143.9	28.00	41.66	5.791	147.0	5 5/8	142.9	.166	11/64
6 5/8	168.3	5.550	141.0	32.00	47.62	5.675	144.1	5 3/8	136.5	.300	19/64
7	177.8	6.413	162.9	17.00	25.30	6.538	166.0	6 1/4	158.8	.288	9/32
7	177.8	6.331	160.8	20.00	29.76	6.456	163.9	6 1/4	158.8	.206	13/64
7	177.8	6.241	158.5	23.00	34.22	6.366	161.6	6 1/4	158.8	.116	7/64
7	177.8	6.151	156.2	26.00	38.69	6.276	159.4	6 1/8	155.6	.151	5/32
7	177.8	6.059	153.9	29.00	43.15	6.184	157.0	6	152.4	.184	3/16
7	177.8	5.969	151.6	32.00	47.62	6.094	154.7	6	152.4	.094	3/32
7	177.8	5.875	149.3	35.00	52.08	6.004	152.5	5 7/8	149.2	.129	1/8
7	177.8	5.795	147.2	38.00	56.54	5.920	150.3	5 3/4	146.0	.170	11/64
7 5/8	193.7	7.00	178.2	20.00	29.76	7.125	180.9	6 3/4	171.4	.375	3/8
7 5/8	193.7	6.90	175.3	24.00	35.71	7.025	178.4	6 3/4	171.4	.275	9/32
7 5/8	193.7	6.844	173.0	26.40	39.28	6.969	177.0	6 3/4	171.4	.219	7/32
7 5/8	193.7	6.750	171.5	29.70	44.19	6.875	174.6	6 3/4	171.4	.125	1/8
7 5/8	193.7	6.640	168.7	33.70	50.15	6.765	171.8	6 5/8	168.3	.140	9/64
7 5/8	193.7	6.50	165.0	39.00	58.03	6.625	168.2	6 1/4	158.8	.375	3/8
8 5/8	219.1	7.972	202.5	24.00	35.71	8.097	205.6	7 7/8	200.0	.222	7/32
8 5/8	219.1	7.892	200.5	28.00	41.66	8.017	203.6	7 7/8	200.0	.142	9/64
8 5/8	219.1	7.796	198.0	32.00	47.62	7.921	201.1	7 5/8	193.6	.296	19/64
8 5/8	219.1	7.700	195.6	36.00	53.57	7.825	198.7	7 5/8	193.6	.200	13/64
8 5/8	219.1	7.60	193.0	40.00	59.52	7.725	196.2	7 5/8	193.6	.100	3/32
8 5/8	219.1	7.50	190.5	44.00	65.47	7.625	193.6	7 3/8	187.3	.250	1/4
8 5/8	219.1	7.386	187.6	49.00	72.91	7.551	190.7	7 3/8	187.3	.136	9/64
9 5/8	244.5	8.907	226.7	29.30	43.60	9.063	230.2	8 3/4	222.2	.313	5/16
9 5/8	244.5	8.845	224.7	32.30	48.06	9.001	228.6	8 3/4	222.2	.251	1/4
9 5/8	244.5	8.765	222.3	36.00	53.57	8.921	226.5	8 3/4	222.2	.171	11/64
9 5/8	244.5	8.679	220.4	40.00	59.52	8.835	224.4	8 5/8	219.1	.210	13/64
9 5/8	244.5	8.599	218.4	43.50	64.73	8.755	222.3	8 5/8	219.1	.130	1/8
9 5/8	244.5	8.525	216.5	47.00	69.94	8.861	220.4	8 1/2	215.9	.181	3/16
9 5/8	244.5	8.379	212.8	53.50	79.61	8.535	216.7	8 3/8	212.7	.160	5/32
10 3/4	273.0	10.036	254.9	32.75	48.73	10.192	258.8	9 7/8	250.8	.317	5/16
10 3/4	273.0	9.894	251.3	40.50	60.26	10.050	255.2	9 7/8	250.8	.175	11/64
10 3/4	273.0	9.794	248.5	45.50	67.70	9.950	252.7	9 3/4	247.6	.200	13/64
10 3/4	273.0	9.694	246.2	51.00	75.89	9.850	250.1	9 5/8	244.5	.225	7/32
10 3/4	273.0	9.604	243.9	55.50	82.58	9.760	247.9	9 5/8	244.5	.135	9/64
11 3/4	298.4	-	-	38.00	56.54	11.150	283.2	11	279.4	.150	5/32
11 3/4	298.4	-	-	42.00	62.50	11.084	281.5	10 3/4	273.0	.334	21/64
11 3/4	298.4	10.844	275.4	47.00	69.94	11.000	279.4	10 3/4	273.0	.250	1/4
11 3/4	298.4	10.724	272.4	54.00	80.35	10.880	276.3	10 5/8	269.9	.255	1/4
11 3/4	298.4	-	-	64.00	89.28	10.772	273.6	10 5/8	269.9	.147	6/64
13 3/8	339.7	-	-	48.00	71.42	12.715	322.9	12 1/4	311.2	.465	15/32
13 3/8	339.7	12.459	316.5	54.50	81.10	12.615	320.4	12 1/4	311.2	.365	25/64
13 3/8	339.7	12.359	313.9	61.00	90.77	12.515	317.8	12 1/4	311.2	.265	17/64
13 3/8	339.7	12.259	311.4	68.00	101.18	12.415	315.3	12 1/4	311.2	.165	11/64
13 3/8	339.7	12.191	309.7	72.00	107.14	12.347	316.6	12	304.8	.347	11/32
16	406.4	-	-	55.00	81.84	15.375	390.5	15	381.0	.375	3/8
16	406.4	15.062	382.6	65.00	96.72	15.250	387.3	15	381.0	.250	1/4
16	406.4	14.936	379.4	75.00	111.60	15.125	384.1	14 3/4	374.6	.375	3/8
16	406.4	14.822	376.5	84.00	124.99	15.010	381.2	14 3/4	374.6	.260	17/64
20	508.0	18.936	486.0	94.00	139.87	19.124	485.7	17 1/2	444.5	1.624	1 5/8