Drill Collars

Connections and Recommended Make-up Torque■

Connection			Minimum Make-up Torque in ft-lb ❖								
Size	Type	OD	Bore Of Drill Collar in.								
in.		in.	1	1-1/4	1-1/2	1-3/4	2	2-1/4	2-1/2	2-13/16	3
API	NC 23	3	*2,508			-	-	-	-	-	-
		3-1/8	*3,330		2,647						
		3-1/4	4,000	3,387	2,647						
2-3/8	Regular	3	-	*2,241		1,749	-	-	-	-	-
		3-1/8		*3,028	2,574						
		3-1/4		3,285							
2-7/8	PAC●	3	-	*3,797		2,926	-	-	-	-	-
		3-1/8		*4,966	4,151						
		3-1/4		5,206							
2-3/8 API 2-7/8	API IF NC 26 Regular	3-1/2	-	*4,606		3,697	-	-	-	-	-
		3-3/4		5,501	4,668	3,697					
		3-1/2		*3,838							
		3-3/4		5,766	4,951	4,002					
		3-7/8									
2-7/8	Slim Hole	-	-	-			-	-	-	-	-
2-7/8	Extra Hole	3-3/4	-	*4,089			-	-	-	-	-
3-1/2	Dbl Streamline	3-7/8	-	*5,352			-	-	-	-	-
2-7/8	Model Open	4-1/8	-	*8,059		7,433	-	-	-	-	-
2-7/8 API 3-1/2	API IF NC 31 Regular	3-7/8	-	*4,640	*4,640	*4,640	*4,640	-	-	-	-
		4-1/8		*7,390	*7,390	*7,390	6,853				
				*6,466	*6,466	*6,466	*6,466	5,685			
		4-1/4		*7,886	*7,886	*7,886	7,115				
		4-1/2		10,471	9,514	8,394					
3-1/2	Slim Hole	4-1/4	-	*8,858	*8,858	8,161	6,853	5,391	-	-	-
		4-1/2		10,286	9,307						
API	NC 35	4-1/2	-	-	-	*9,038	*9,038	*9,038	7,411	-	-
		4-3/4				12,273	10,826	9,202			
		5									
3-1/2 4 3-1/2	Extra Hole Slim Hole Model Open	4-1/4	-	-	-	*5,161	*5,161	*5,161	*5,161	-	-
		4-1/2				*8,479	*8,479	*8,479	8,311		
		4-3/4				*12,074	11,803	10,144			
		5				13,283					
		5-1/4									
3-1/2 API 4-1/2	API IF NC 38 Slim Hole	4-3/4	-	-	-	*9,986				8,315	-
		5				*13,949		12,907	10,977		
		5-1/4				16,207	14,643				
		5-1/2									
3-1/2	H-90 ▲	4-3/4	-	-	-	*8,786					-
		5				*12,794				10,408	
		5-1/4				*17,094	16,929	15,137	13,151		
		5-1/2				18,522					

Note: In each connection size and type group, Torque values apply to all connection types in the group when used with the same drill collar outside collar diameter and bore; I.E., 2-3/8" API IF, API NC26 and 2-7/8" slim hole connections used with 3-1/2" x 1-1/4" drill collars all have the same minimum make-up torque of 4,600 ft-lb and the box is the weaker member.

* Torque figures preceded by an asterisk indicate the box as the weaker member for the corresponding outside diameter (OD) and bore. The pin is the weaker member for all other torque values.

■ Recommended Make-up Torque calculations assume the thorough application to all threads and shoulders of a thread compound which contains either 40 - 60 percent by weight finely powdered metallic Zinc or 60 percent by weight finely powdered metallic Lead and never more than 0.3 percent Sulfur. Calculations also assume use of the Modified Jack Screw Formula contained in API RP7G, Appendix A, Paragraph A.8, and a Unit Stress of 62,500 psi in the box or pin, whichever is weaker.

❖Normal torque range is tabulated value plus 10 percent. Higher values may be used under extreme conditions.

▲Make-up torque for H-90 based on 56,200 psi stress and other factors in 1, above

● Make-up torque for 2-7/8" PAC based on 87,500 psi stress and other factors in 1, above

Data provided by API, from Table 14, pages 35-38, 16th edition, API RP7G; August, 1998

Drill Collars (Continued)

Connections and Recommended Make-up Torque■

Connection			Minimum Make-up Torque in ft-lb ❖								
Size	Type	OD	Bore Of Drill Collar in.								
in.		in.	1	1-1/4	1-1/2	1-3/4	2	2-1/4	2-1/2	2-13/16	3
4 API 4 4-1/2	Full Hole NC 40 Model Open Dbl Streamline	5	-	-	-	*10,910					-
		5-1/4				*15,290			14,969	12,125	
		5-1/2				*19,985	18,886	17,028			
		5-3/4				20,539					
		6									
4	H-90 ▲	5-1/4	-	-	-	*12,590					-
		5-1/2				*17,401				16,536	
		5-3/4				*22,531		21,714	19,543		
		6				25,408	23,671				
		6-1/4									
4-1/2	API Regular	5-1/2	-	-	-	*15,576					-
		5-3/4				*20,609			19,601	16,629	
		6				25,407	23,686	21,749			
		6-1/4									
API	NC 44	5-3/4	-	-	-	*20,895				18,161	-
		6				*26,453	25,510	23,493	21,257		
		6-1/4				27,300					
		6-1/2									
4-1/2	API Full Hole	5-1/2	-	-	-	-	*12,973				
		5-3/4					*18,119				17,900
		6					*23,605		22,028	19,921	
		6-1/4					27,294	25,272			
		6-1/2									
4-1/2 API 4 4-1/2 5 4-1/2	Extra Hole NC 46 API IF Semi IF Dbl Streamline Model Open	5-3/4	-	-	-	-	-	*17,738			
		6						*23,422		22,426	20,311
		6-1/4						28,021	25,676		
		6-1/2									
		6-3/4									
4-1/2	H-90 ▲	5-3/4	-	-	-	-	-	*18,019			
		6						*23,681		23,159	21,051
		6-1/4						28,732	26,397		
		6-1/2									
		6-3/4									
5	H-90 ▲	6-1/4	*25,360				23,988	-	-	-	-
		6-1/2	*31,895		29,400	27,167					
		6-3/4	35,292	32,825							
		7									
4-1/2 API 5 5 5-1/2 5	API IF NC 50 Extra Hole Model Open Dbl Streamline Semi IF	6-1/4	*23,004					-	-	-	-
		6-1/2	*29,679				26,675				
		6-3/4	*36,742	35,824	32,277	29,966					
		7	38,379								
		7-1/4									
		7-1/2									
5-1/2	H-90 ▲	6-3/4	*34,508			34,142	30,781	-	-	-	-
		7	*41,993	40,117	36,501						
		7-1/4	42,719								
		7-1/2									
	API Regular	6-3/4	*31,941				30,495	-	-	-	-
		7	*39,419		36,235	33,868					
		7-1/4	42,481	39,866							
		7-1/2									
	API Full Hole	7	*32,762					-	-	-	-
		7-1/4	*40,998								
		7-1/2	*49,661		47,756	45,190	41,533				
		7-3/4	54,515	51,687							

Refer to page 3-1 for additional information

Drill Collars (Continued)

Connections and Recommended Make-up Torque■

Connection			Minimum Make-up Torque in ft-lb ❖								
Size	Type	OD	Bore Of Drill Collar in.								
in.		in.	1	1-1/4	1-1/2	1-3/4	2	2-1/4	2-1/2	2-13/16	3
API	NC 56	7-1/4	-	*40,498				-	-	-	-
		7-1/2		*49,060	48,221	45,680	42,058				
		7-3/4		52,115							
		8									
6-5/8	API Regular	7-1/2	-	*46,399				-	-	-	-
		7-3/4		*55,627	53,346	50,704	46,936				
		8		57,393							
		8-1/4									
	H-90 ▲	7-1/2		*46,509							
		7-3/4		*55,708		53,629	46,855				
		8		60,321	56,273						
		8-1/4									
API	NC 61	8	-	*55,131				-	-	-	-
		8-1/4		*65,438			61,624				
		8-1/2		72,670	68,398	65,607					
		8-3/4									
		9									
5-1/2	API IF	8	-	*56,641					-	-	-
		8-1/4		*67,133			63,381	59,027			
		8-1/2		74,626	70,277	67,436					
		8-3/4									
		9									
		9-1/4									
6-5/8	API Full Hole	8-1/2	-	*67,789					67,184	-	-
		8-3/4		*79,544			76,706	72,102			
		9		88,582	83,992	80,991					
		9-1/4									
		9-1/2									
API	NC 70	9	-	*75,781						-	-
		9-1/4		*88,802							
		9-1/2		*102,354			101,107	96,214	90,984		
		9-3/4		113,710	108,841	105,657					
		10									
		10-1/4									
	NC 77	10	-	-	*108,194						
		10-1/4			*124,051						
		10-1/2			*140,491			140,488	135,119		
		10-3/4			154,297	148,965	145,476				
		11									
7	H-90 ▲	8	-	*53,454						-	-
		8-1/4		*63,738				60,971	56,382		
		8-1/2		*74,478	72,066	69,265	65,267				
7-5/8	API Regular	8-1/2	-	*60,402						-	-
		8-3/4		*72,169							
		9		*84,442			84,221	79,536	74,529		
		9-1/4		96,301	91,633	88,580					
		9-1/2									
	H-90 ▲	9		*73,017							
		9-1/4		*86,006							
		9-1/2		*99,508					96,285		
8-5/8	API Regular	10	-	*109,345						-	-
		10-1/4		*125,263					125,034		
		10-1/2		*141,767		141,134	136,146	130,777			
	H-90 ▲	10-1/4		*113,482							
		10-1/2		*130,063							

Refer to page 3-1 for additional information

Drill Collars (Continued)

Connections and Recommended Make-up Torque■

Connection			Minimum Make-up Torque in ft-lb ❖								
Size	Type	OD	Bore Of Drill Collar in.								
in.		in.	1	1-1/4	1-1/2	1-3/4	2	2-1/4	2-1/2	2-13/16	3
7	H-90 ▲ (with low torque face)	8-3/4	-	-	*68,061		67,257	62,845	58,131	-	-
		9			74,235	71,361					
7-5/8	API Regular (with low torque face)	9-1/4	-	-	-	*73,099				-	-
		9-1/2				*86,463		82,457	77,289		
		9-3/4				91,789	87,292				
		10									
	H-90 ▲ (with low torque face)	9-3/4			*91,667						
		10			*106,260			104,171	98,804		
		10-1/4			117,112	113,851	109,188				
		10-1/2									
8-5/8	API Regular (with low torque face)	10-3/4	-	-	-	*112,883				-	-
		11				*130,672					
		11-1/4				147,616	142,430	136,846	130,871		
	H-90 ▲ (with low torque face)	10-3/4				*92,960					
		11				*110,781					
		11-1/4				*129,203					

Refer to page 3-1 for additional information

Drill Collar Weight (Steel)
(lb per ft)

Collar OD	Drill Collar ID (in.)												
in.	1	1-1/4	1-1/2	1-3/4	2	2-1/4	2-1/2	2-13/16	3	3-1/4	3-1/2	3-3/4	4
2-7/8	19	18	16	-	-	-	-	-	-	-	-	-	-
3	21	20	18	-	-	-	-	-	-	-	-	-	-
3-1/8	22	22	20	-	-	-	-	-	-	-	-	-	-
3-1/4	26	24	22	-	-	-	-	-	-	-	-	-	-
3-1/2	30	29	27	-	-	-	-	-	-	-	-	-	-
3-3/4	35	33	32	-	-	-	-	-	-	-	-	-	-
4	40	39	37	35	32	29	-	-	-	-	-	-	-
4-1/8	43	41	39	37	35	32	-	-	-	-	-	-	-
4-1/4	46	44	42	40	38	35	-	-	-	-	-	-	-
4-1/2	51	50	48	46	43	41	-	-	-	-	-	-	-
4-3/4	-	-	54	52	50	47	44	-	-	-	-	-	-
5	-	-	61	59	56	53	50	-	-	-	-	-	-
5-1/4	-	-	68	65	63	60	57	-	-	-	-	-	-
5-1/2	-	-	75	73	70	67	64	60	-	-	-	-	-
5-3/4	-	-	82	80	78	75	72	67	64	60	-	-	-
6	-	-	90	88	85	83	79	75	72	68	-	-	-
6-1/4	-	-	98	96	94	91	88	83	80	76	72	-	-
6-1/2	-	-	107	105	102	99	96	91	89	85	80	-	-
6-3/4	-	-	116	114	111	108	105	100	98	93	89	-	-
7	-	-	125	123	120	117	114	110	107	103	98	93	84
7-1/4	-	-	134	132	130	127	124	119	116	112	108	103	93
7-1/2	-	-	144	142	139	137	133	129	126	122	117	113	102
7-3/4	-	-	154	152	150	147	144	139	136	132	128	123	112
8	-	-	165	163	160	157	154	150	147	143	138	133	122
8-1/4	-	-	176	174	171	168	165	160	158	154	149	144	133
8-1/2	-	-	187	185	182	179	176	172	169	165	160	155	150
9	-	-	210	208	206	203	200	195	192	188	184	179	174
9-1/2	-	-	234	232	230	227	224	220	216	212	209	206	198
9-3/4	-	-	248	245	243	240	237	232	229	225	221	216	211
10	-	-	261	259	257	254	251	246	243	239	235	230	225
11	-	-	317	315	313	310	307	302	299	295	291	286	281
12	-	-	379	377	374	371	368	364	361	357	352	347	342

Note 1: To determine weights of standard drill collars not shown use the following formula:
(Area OD - Area ID) x 3.408 = wt/ft

Note 2: To determine approximate weights of spiral drill collars, find the pounds per foot for a collar of the same size in the above chart and multiply by 96 percent; for example, a collar with an OD of 6" and an ID of 2" OD = 85 pounds per foot above; 85 x .96 = 81.6 pounds per foot (an approximation)

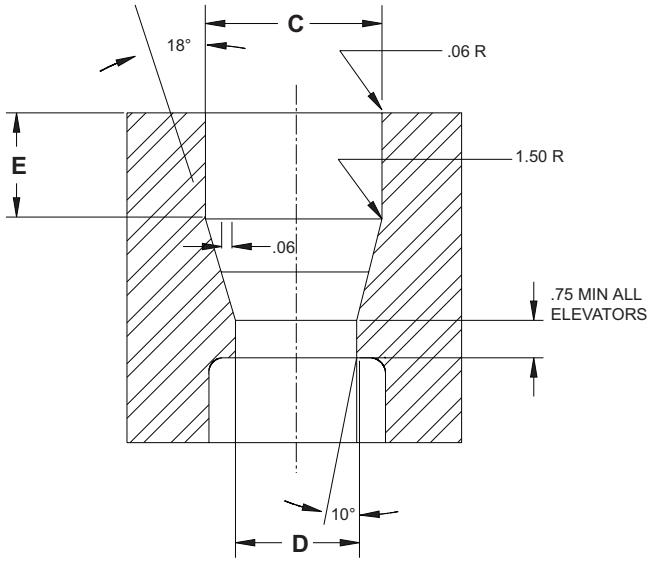
Note 3: To determine class weights, multiply by number of feet; for example, a 30" class collar with an OD of 6" and an ID of 2" weighs 85 pounds per foot; 85 x 30 = 2,550 pounds

Data provided by API, from Table 13, page 34, 16th edition, API RP7G; August, 1998

See API Specification 7, Table 13 for API standard drill collar dimensions

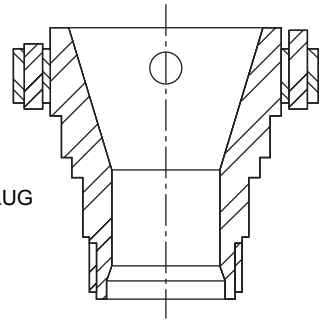
For special configurations of drill collars, consult manufacturer for reduction in weight

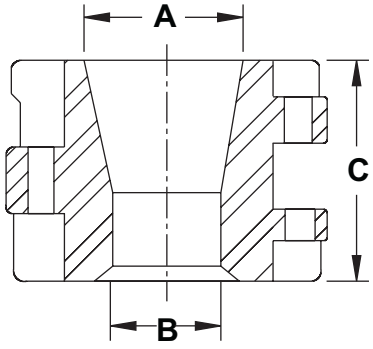
Baash-Ross 18° Elevator Bore Chart



Drill Pipe Size		Neck Diameter	C Top Bore	D Center Bore	E T-100	E T-150	E T-250 & T-350
2-3/8	IF	2-9/16	4-1/4	2-21/32	-	-	-
2-7/8	R & FH	3	4-3/8	3-3/32	-	1-5/8	-
	IF	3-3/16	4-3/4	3-9/32			
3-1/2	R & FH	3-11/16	5-1/4	3-25/32	-	1-5/8	-
	IF	3-7/8	5-1/2	3-31/32			
4	FH	4-3/16	6-1/2	4-9/32	1-1/2	1-5/8	3-3/8
	IF	4-1/2	6-3/4	4-25/32			
4-1/2	R & FH	4-11/16	6-3/4	4-25/32	1-1/2	1-5/8	3-3/8
	IF	5	7-1/8	5-1/4			
5	EIU	5-1/8	7-1/8	5-1/4	1-1/2	1-5/8	3-3/8
5-1/2	R & FH	5-11/16	7-7/8	5-13/16	-	1-5/8	3-3/8

TRI-STATE
25 TON
STRIPPING PLUG



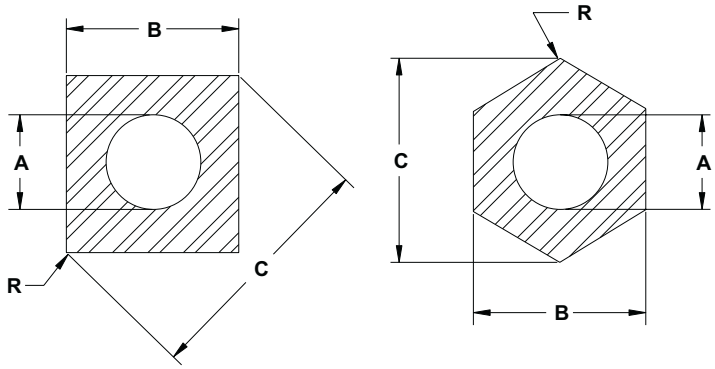


TRI-STATE
HINGED
STRIPPING BOWL

Baker Hughes Hinged Stripping Bowls

	50 Ton Capacity		100 Ton Capacity		150 Ton Capacity
A	6-7/8	7-1/2	7-9/16▲	9-7/8▲	13-1/16▲
B	5	6-3/8	5-1/2	7	10-1/8
C	6	6	10	10	12

▲Allows for Reda cable



Square Kellys Dimensions

Kelly Size (API)	Upper Box Connection		Lower Pin Connection	Max Bore A	Across Flats B	Across Corner C	Radius R
	Standard	Optional		in.	in.	in.	in.
2-1/2	6-5/8 Reg	4-1/2 Reg	(NC26)	1-1/4	2-1/2	3-9/32	5/16
3	6-5/8 Reg	4-1/2 Reg	(NC31)	1-3/4	3	3-15/16	3/8
3-1/2	6-5/8 Reg	4-1/2 Reg	(NC38)	2-1/4	3-1/2	4-17/32	1/2
4-1/4	6-5/8 Reg	4-1/2 Reg	(NC46)	2-13/16	4-1/4	5-9/16	1/2
			(NC50)				
5-1/4	6-5/8 Reg	-	5-1/2 FH	3-1/4	5-1/4	6-29/32	5/8
			NC56				

Data provided by API from table 2 columns 1, 6, 7, 9, 12, 13, 19 and 23, fortieth edition, API Spec 7; November, 2001

Hexagon Kellys Dimensions

Kelly Size (API)	Upper Box Connection		Lower Pin Connection	Max Bore A	Across Flats B	Across Corner C	Radius R
	Standard	Optional		in.	in.	in.	in.
3	6-5/8 Reg	4-1/2 Reg	(NC26)	1-1/4	3	3-3/8	1/4
3-1/2	6-5/8 Reg	4-1/2 Reg	(NC31)	1-3/4	3-1/2	3-31/32	1/4
4-1/4	6-5/8 Reg	4-1/2 Reg	(NC38)	2-1/4	4-1/4	4-13/16	5/16
5-1/4	6-5/8 Reg	-	(NC46)	3	5-1/4	5-31/32	3/8
			(NC50)	3-1/4			
6	6-5/8 Reg	-	5-1/2 FH	3-1/2	6	6-13/16	3/8
			NC56				

Data provided by API from table 2 columns 1, 6, 7, 9, 12, 13, 19 and 23, fortieth edition, API Spec 7; November, 2001

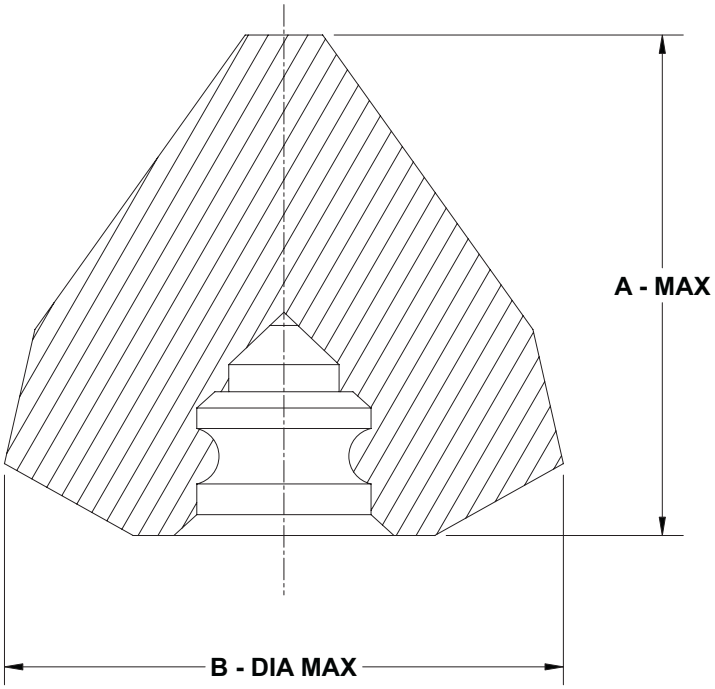
Kelly Weights (lb per ft)

(Drive Section) Square Kelly

Across Flat	Bore Of Square Kelly											
	1-1/16	1-1/4	1-1/2	1-3/4	2	2-1/4	2-1/2	2-3/4	2-7/8	3	3-1/4	3-1/2
2-1/2	18.3	17.1	-	-	-	-	-	-	-	-	-	-
3	-	25.8	24.0	21.8	-	-	-	-	-	-	-	-
3-1/2	-	-	35.6	33.5	31.0	28.2	-	-	-	-	-	-
4-1/4	-	-	-	-	-	47.9	44.7	41.3	39.3	-	-	-
5-1/4	-	-	-	-	-	-	-	73.5	71.6	69.7	65.5	-
6	-	-	-	-	-	-	-	-	-	-	-	89.6

Hexagon Kellys

Across Flat	Bore Of Square Kelly											
	1-1/4	1-1/2	1-3/4	2	2-1/4	2-1/2	2-3/4	2-7/8	3	3-1/4	3-1/2	4
3	22.3	20.5	-	-	-	-	-	-	-	-	-	-
3-1/2	-	30.1	27.9	25.4	22.6	-	-	-	-	-	-	-
3-3/4	-	35.3	33.2	30.7	27.9	-	-	-	-	-	-	-
4-1/4	-	-	-	-	39.6	36.4	32.9	31.0	-	-	-	-
4-27/32	-	-	-	-	-	56.4	53.3	49.8	47.9	45.9	41.7	-
5-1/4	-	-	-	-	-	-	60.9	59.0	57.1	52.9	48.4	-
6	-	-	-	-	-	-	-	-	-	-	73.2	63.2



Maximum Cone Dimensions Reed-Hycalog
Milled Tooth Three Cone Rock Bits

Size Range	A	B
3-3/4	1-27/32	2-31/64
3-7/8	1-27/32	2-35/64
4-5/8 - 4-3/4	2-1/4	3-1/16
5-7/8 - 6	2-53/64	3-53/64
6-1/8 - 6-1/4	3-1/32	3-31/32
6-1/2 - 6-5/8	3-11/64	4-17/64
3-9/64	3-9/32	4-11/64
7-5/8 - 7-3/4	3-23/32	4-59/64
7-7/8	3-31/32	5-17/64
8-3/8 - 8-5/8	4-13/64	5-45/64
8-3/4	4-7/32	5-55/64
9-1/2 - 9-5/8	4-27/32	6-25/64
9-7/8	4-15/16	6-29/64
10-5/8	5-9/32	7-1/64
11	5-7/32	7-21/64
12	5-7/8	7-3/4
12-1/4	5-7/8	7-59/64
13-1/2	6-53/64	8-27/32
13-3/4	6-53/64	8-7/8
14-3/4 - 15	7-5/16	9-57/64
17-1/2	8-3/4	11-9/32
18-1/2	8-29/32	10-5/8

Data provided by Reed-Hycalog; August, 2005

Maximum Cone Dimensions
Reed-Hycalog Insert Type Three Cone Rock Bits

Size Range	A	B
6-1/4	2-9-16	3-25/32
6-1/2	2-21/32	3-31/32
6-3/4	2-23/32	4-1/8
7-5/8 - 7-3/4	3-1/8	4-11/16
7-7/8	3-17/32	5-29/32
8-3/8 - 8-5/8	3-9/16	5-1/2
8-3/4	3-19/32	5-5/32
9-1/2 - 9-5/8	4-3/16	5-7/8
9-7/8	4-3/8	5-7/8
10-5/8	4-1/2	6-3/8
11	4-1/4	6-1/2
12	5	7-3/8
12-1/4	5-3/8	7-1/2
17-1/2	8	10-1/2
22	9-11/16	13-9/16
24	10-5/8	14-23/32
26	11-13/32	15-25/32

Data provided by Reed-Hycalog; August, 2005

Maximum Cone Dimensions For Three-Cone Rock Bits

Size Range		Maximum Diameter		Maximum Length	
in.	*mm*	in.	*mm*	in.	*mm*
3-1/2 - 3-7/8	*89-98*	2-3/8	*60*	1-5/8	*41*
4-3/4	*121*	2-7/8	*73*	2-1/8	*54*
5-7/8 - 6-1/4	*149-159*	4-1/4	*108*	3-1/8	*79*
6-1/2 - 6-3/4	*165-172*	4-1/2	*114*	3-1/2	*89*
7-3/8 - 8	*187-203*	5-1/4	*133*	4	*102*
8-1/8 - 8-1/2	*206-216*	5-7/8	*149*	4-1/8	*105*
8-5/8 - 9	*219-229*	6-1/8	*156*	4-5/8	*117*
9-1/8 - 9-1/2	*232-241*	6-1/2	*165*	4-3/8	*111*
9-5/8 - 9-7/8	*245-251*	6-3/4	*171*	4-3/4	*121*
10 - 10-5/8	*254-270*	7-1/4	*184*	5-1/2	*140*
11 - 11-7/8	*279-302*	7-7/8	*200*	5-7/8	*149*
12 - 12-1/4	*305-311*	8	*203*	6-1/8	*156*
13-1/4 - 15	*337-381*	9-5/8	*244*	7-5/8	*194*
16	*406*	10-1/4	*260*	8-1/8	*206*
17-1/2	*445*	11-1/2	*292*	8-5/8	*219*
18-1/2	*470*	12	*305*	9	*229*
20	*508*	12-1/2	*318*	9-5/8	*244*
22	*559*	13-3/4	*349*	10-1/2	*267*
24	*610*	15-1/4	*387*	11-1/4	*286*
26	*660*	16	*406*	12-3/4	*324*
28	*711*	17	*432*	13	*330*

Data provided by Smith Bits; August, 2005

Maximum Cone Dimensions
Smith Bits Two-Cone Rock Bit

Size Range	A	B
6-1/2 - 6-3/4	2-49/64	4-41/64
7-5/8 - 8	3-11/32	5-5/8
8-5/8 - 9	3-27/32	5-3/4
9-5/8 - 9-7/8	4-19/64	6-41/64
12 - 12-1/4	5-11/64	8-23/32

Data provided by Smith Bits; August, 2005

Maximum Cone Dimensions
Hughes Christensen Rock Bits

Size Range	A	B
3-3/4	1-39/64	2-5/16
3-7/8	1-21/32	2-11/32
4-1/8	1-63/64	2-49/64
4-3/4	2-17/64	3-13/64
5-7/8	2-49/64	3-27/32
6	2-15/16	3-59/64
6-1/8	3-17/64	4-13/64
6-1/4	3-1/64	4-1/8
6-1/2	3-3/64	4-5/16
6-3/4	3-11/64	4-7/16
7-7/8	3-51/64	5-15/64
8-3/8	4-1/64	5-45/64
8-1/2	4-7/32	5-13/16
8-3/4	4-41/64	6-1/32
9-1/2	4-18/32	6-13/64
9-7/8	4-53/64	6-31/64
10-5/8	5-1/2	7-1/64
11	5-29/64	7-11/64
12-1/4	6-19/64	8-13/64
13-3/4	6-5/32	8-13/16
14-3/4	7-6/64	9-13/16
17-1/2	8-45/64	11-37/64
20	9-17/64	13-11/32
24	11	15-19/32
26	11-19/32	16-31/64

Data provided by Hughes Christensen; August, 2005

API Casing - Bit Sizes and Clearances

Casing Data				Drill Bit Specifications									
				8 Round and Buttress Casing					X-line Casing				
OD	Wt T and C	ID 8 Rd and Butt	Upset ID X-Line	Size	Conn API Reg	Wt	Clearance		Conn Size	API Reg	Wt	Clearance	
							Dec	Frac				Dec	Frac
in.	lb-ft	in.	in.	in.		lb			in.		lb		
4-1/2	9.50	4.090	-	3-7/8	2-3/8	10	.215	7/32	-	-	-	-	-
	10.50	4.052					.177	11/64					
	11.60	4.000					.125	1/8					
	13.50	3.920		3-3/4			.170	11/64					
5	11.50	4.560	-	4-1/4	2-3/8	11	.310	5/16	-	-	-	-	-
	13.00	4.494					.244	1/4					
	15.00	4.408	4.198				.158	5/32	4-1/8	2-3/8	11	.073	5/64
	18.00	4.276		4-1/8			.151						
5-1/2	14.00	5.012	-	4-3/4	2-7/8	16	.262	17/64	-	-	-	-	-
	15.50	4.950	4.736				.200	13/64	4-5/8	2-7/8	16	.111	7/64
	17.00	4.892	4.701				.142	9/64				.076	5/64
	20.00	4.778		4-5/8			.153	5/32					
	23.00	4.670	4.610	4-1/2	2-3/8	12	.170	11/64	4-1/2	2-3/8	12	.110	7/64
6-5/8	20.00	6.049	-	5-7/8	3-1/2	29	.174	17/64	-	-	-	-	-
	24.00	5.921	5.781	5-5/8		24	.296	19/64	5-5/8	3-1/2	24	.156	5/32
	28.00	5.791	5.731				.166	11/64				.106	7/64
	32.00	5.675	5.615	4-3/4	2-7/8	15	.925	59/64	4-3/4	2-7/8	15	.865	55/64
7	17.00	6.538	-	6-1/4	3-1/2	30	.288	9/32	-	-	-	-	-
	20.00	6.456					.206	13/64					
	23.00	6.366	6.171	6-1/8			.241	1/4	6-1/8	3-1/2	30	.046	3/64
	26.00	6.276					.151	5/32					
	29.00	6.184	6.123	6		29	.184	3/16	6		29	.123	1/8
	32.00	6.094	6.032				.219	7/32	5-7/8			.157	5/32
	35.00	6.004	5.940	5-7/8			.129	1/8				.065	1/16
	38.00	5.920	5.860			24	.295	3/64	5-5/8		24	.235	15/64
7-5/8	24.00	7.025	-	6-3/4	3-1/2	45	.275	9/32	-	-	-	-	-
	26.40	6.969	6.770				.219	7/32	6-5/8	3-1/2	38	.145	9/64
	29.70	6.875		6-5/8		38	.250	1/4					
	33.70	6.765	6.705				.140	9/64				.085	5/64
	39.00	6.625	6.565	6-1/4		30	.375	3/8	6-1/4		30	.315	5/16
8-5/8	24.00	8.097	-	7-7/8	4-1/2	73	.222	7/32	-	-	-	-	-
	28.00	8.017					.142	9/64					
	32.00	7.921	7.725	7-5/8		68	.271	17/64	7-5/8	4-1/2	68	.100	3/32
	36.00	7.825					.200	13/64					
	40.00	7.725	7.663	6-3/4	3-1/2	42	.975	31/32	6-3/4	3-1/2	42	.913	29/32
	44.00	7.625	7.565				.875	7/8				.815	13/16
	49.00	7.511	7.451				.761	49/64				.706	45/64
9-5/8	32.30	9.001	-	8-3/4	4-1/2	90	.251	1/4	-	-	-	-	-
	36.00	8.921					.171	11/64					
	40.00	8.835	8.665	8-5/8		89	.210	13/64	8-1/2	4-1/2	86	.165	11/64
	43.50	8.755		8-1/2		86	.255	1/4					
	47.00	8.681	8.621				.181	3/16				.121	1/8
	53.50	8.535	8.475	8-3/8			.160	5/32	8-3/8			.100	7/64
10-3/4	32.75	10.192	-	9-7/8	5-1/2 or 6-5/8	135	.317	5/16	-	-	-	-	-
	40.50	10.050					.175	11/64					
	45.50	9.950	9.719	9-5/8			.325	21/64	9-5/8	6-5/8	135	.094	3/32
	51.00	9.850	9.629		4-1/2		.225	7/32	9-1/2			.129	1/8
	55.50	9.760		9-1/2			.260	17/64					
11-3/4	42.00	11.084	-	10-5/8	6-5/8	145	.459	29/64	(No X-line In This Size)				
	47.00	11.000					.375	3/8					
	54.00	10.880					.255	1/4					
	60.00	10.772					.147	5/32					

Diametrical clearances listed above are based on the inside diameter of casing (or joint ID for X-line Casing)

Data provided by API from tables 6.1 and 6.3, pages 54 and 61, API Spec 5C7, 3rd edition; December 1, 1990

API Casing - Bit Sizes and Clearances (Continued)

Casing Data				Drill Bit Specifications								
				8 Round and Buttress Casing					X-line Casing			
OD	Wt T and C	ID 8 Rd and Butt	Upset ID X-Line	Size	Conn API Reg	Wt	Clearance		Conn Size	API Reg	Wt	Clearance	
							Dec	Frac				Dec	Frac
in.	lb-ft	in.	in.	in.		lb			in.		lb		
13-3/8	48.00	12.715	-	12-1/4	6-5/8	211	.465	15/32	-				
	54.50	12.615					.365	23/64					
	61.00	12.515					.265	17/64					
	68.00	12.415					.165	11/64					
	72.00	12.347		12		201	.347	11/32					
16	65.00	15.250	-	15	6-5/8 or 7-5/8	300	.250	1/4	-				
	75.00	15.125		14-3/4			.375	3/8					
	84.00	15.010					.260	17/64					
18-5/8	87.50	17.755	-	17-1/2	6-5/8 or 7-5/8	500	.255	1/4	-				
20	94.00	19.124	-	18-1/2	6-5/8 or 7-5/8	615	.624	5/8	-				
	106.50	19.000					.500	1/2					
	133.00	18.730					.230	15/64					

Diametrical clearances listed above are based on the inside diameter of casing (or joint ID for X-line Casing)

Data provided by API from tables 6.1 and 6.3, pages 54 and 61, API Spec 5C7, 3rd edition; December 1, 1990