Lubricated Bumper Sub Strength Data

Assembly No.	OD	ID	Connection	Tensile Strength (Yield)	Yield Torque	
					Bumper Sub	Maximum Operating Torque
	in.	in.		lb	ft-lb	ft-lb
54781	1-13/16	3/8	1-13/16" Wilson FJ	75,400	480	240
41490	2-1/4	3/8	1-1/4" API Reg	116,415	1,740	870
43501	3-1/8	1	2-3/8" API Reg	239,070	3,400	1,700
39712	3-3/8	7/8	2-3/8" API IF	321,000	6,060	3,030
43470	3-3/4	1-1/2	2-3/8" API IF	300,750	7,100	3,550
43521	3-3/4	1-7/8	2-3/8" EUE	291,735	4,920	2,460
43509	3-3/4	1-1/4	2-7/8" API Reg	363,780	7,100	3,550
43531	4-1/4	1-15/16	2-7/8" API IF	397,650	9,260	4,630
42700	4-1/2	2-3/8	2-7/8" EUE	388,650	7,100	3,550
39727	4-5/8	2	3-1/2" API FH	484,650	11,030	5,518
	4-3/4				15,000	7,500
152719	4-3/4	2-1/4	3-1/2" API IF	433,000	15,000	7,500
39732	5-3/4	2-13/16	4-1/2" API FH	622,295	23,000	11,500
	6					
39737	6-1/4	3-1/8	4-1/2" API IF	777,150	32,600	16,300
39778	6-3/4	2-3/4	5-1/2" API Reg	1,130,400	43,200	21,600
39752	7-3/4	3-1/2	6-5/8" API Reg	1,276,950	62,400	31,200

The above tensile strengths are calculated theoretical yield strengths and are considered accurate to ± 20%.
The above operating torque is set at 50% of the calculated theoretical yield torque and is the maximum recommended operating torque.
The figures do not constitute a guarantee, actual or implied; they are meant to serve as a guide only, and appropriate allowance must be made in use, as a safety factor.
Data provided by National Oilwell, Bowen Manual No. 5/4445; November, 2003

Bowen Super Fishing Jar

Jar Assembly No.	Jar Size			Max Rec Jarring Load In Hole■	Tensile at Yield After Jarring	Torque at Yield
	Connection	OD	ID			
		in.	in.	lb	lb	ft-lb
72888	2-3/8 Reg	3-1/8	1	59,000	240,000	3,280
145737	2-7/8 Reg	3-3/4	1-1/4	78,000	324,000	5,000
146544	2-3/8 IF	3-3/4	1-1/2	66,000	333,000	4,800
147902	2-3/8 EUE	3-3/4	1-7/8	48,000	258,000	4,520
80468	2-7/8 IF	4-1/4	2	62,000	374,000	6,800
79789	3-1/2 FH	4-3/4	2	98,000	575,000	11,460
	3-1/2 IF					
145484	4-1/2 FH	6	2	196,000	913,000	20,900
79691	4-1/2 IF	6-1/4	2-1/4	200,000	1.1 million	27,200
145440	5-1/2 Reg	6-3/4	2-3/8	250,000	1.2 million	31,960
72978	6-5/8 Reg	7-3/4	3-1/16	265,000	1.7 million	56,600

■ Loads shown are maximum recommended pull loads. Pulling above the value shown can damage the tools.

All jarring and pulling loads shown assume that the force is acting alone and is essentially along with major axis of the tool. if torque and tension or bending and tension are used together, the resulting combined stresses may lead to failure at substantially less than rated loads. rotation and bending together can lead to fatigue.

Data provided by National Oilwell, Bowen Manual 5/4100; November, 2003

Bowen Super II Fishing Jar Specifications

Outside Diameter (OD)	(inches)	3-1/8	4-3/4	6-1/4	7-3/4
Inside Diameter (ID)	(inches)	1	2-1/4	2-1/4	3-1/16
Connection		2-3/8 API Reg	3-1/2 IF	4-1/2 IF	6-5/8 API Reg
Assembly Number		153283	152790	152564	152408
Length (Closed Position)	(feet - inches)	9 - 10-3/8	12 - 6-7/8	12 - 10-5/16	13 - 2
Stroke	(inches)	11-3/4	12	12	12
Pump Open Areas	(square inches)	2.4	6.5	8.3	16.8
Drill Collar Weight Range (See Note 7)	(lb)	2,100 to 3,600	440 to 7,500	8,100 to 13,600	12,100 to 20,500

Bowen Intensifiers

Intensifier Assembly	OD	ID	Rec Drill Collar Wt Range	Pull Load to Open	Min Pull to Obtain Eff Blow (Above String and Collar Wt)	Tensile At Yield■	Torque		Used With Jar No.	Used With Super Fishing Jar No.
							Maximum Operating	At Yield		
	in.	in.	lb	lb	lb	lb	ft-lb	ft-lb		
70957	1-5/8	1/4	1,100-1,400	14,000	8,400	43,200 46,300	130	260	70822	-
64460	1-13/16	5/16	1,360-1,800	18,100	10,800	59,400	170	340	74223 21150 78074	-
50640	2-1/4	3/8	1,560-2,100	20,700	13,800	118,500	900	1,800	18775 54020	-
68262	2-29/32	1	2,200-3,000	37,000	24,600	194,800	1,130	2,260	68010	-
55867	3-1/8	1	2,400-3,300	30,000	21,000	229,200	2,034	4,068	42736 52504	72888
55895	3-3/4	1-1/4	4,200-5,700	52,000	36,000	345,000	3,820	7,640	38040 13255 52506	145737
55747	3-3/4	1-1/2	3,400-4,600	43,500	30,000	299,700	2,670	5,340	37406 52528	-
50660	3-3/4	1-7/8	3,500-4,700	43,000	30,000	179,500	1,490	2,980	41355 20150 52497	-
55664	4-1/4	1-15/16	3,500-4,700	43,000	30,000	430,300	4,960	9,920	44483 13640 52502	80468
50708	4-1/2	2-3/8	3,600-4,900	49,000	32,000	375,000	5,580	11,160	35849 52653	-
50700	4-3/4	1-1/2	6,300-8,500	78,000	54,000	591,900	9,210	18,420	25960 52530	-
55812	4-3/4	2	5,600-7,500	63,000	43,000	468,800	8,600	17,200	38110 52500	79789
55860	6	2	10,200-13,800	128,500	77,000	937,000	17,160	34,320	14710 52498	145484
55905	6-1/4	2-1/4	11,800-16,000	147,000	102,000	917,400	20,340	40,680	12370 52544	79691
50720	6-3/4	2-3/8	13,000-17,500	172,900	102,000	1,013,800	24,330	48,660	11130 52680	145400
55910	7-3/4	3-1/16	11,000-15,000	126,000	88,000	1,587,900	32,010	64,020	15160 52711	-
78964▲	7-3/4	3-1/16	12,100-20,500	220,000	123,000	1,600,000	26,350	52,700	-	72978
66372	9	3-3/4	12,000-16,000	200,000	100,000	1,621,000	46,130	92,260	66346	-

■ The strengths shown are theoretical calculations based on yield strength of the material used in each case. The strengths shown are therefore accurate, plus or minus 20 percent of the figures shown only. These figures do not constitute a guarantee, actual or implied; they are meant to serve as a guide only, and appropriate Allowance must be made in use, as a safety factor.

▲ Bowen Super Intensifier

Data provided by National Oilwell; April, 2004