

EZ DRILL® PACKERS



EZ DRILL SV PACKER

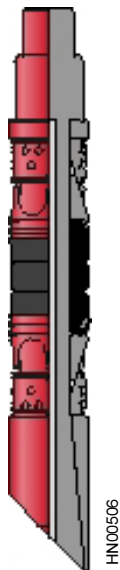
- Designed to control pressure and fluid flow for remedial cementing operations.
- Controls flow and pressure differential in either direction.
- Can be removed with conventional drilling methods and equipment.
- Fluid movement is controlled with a pressure-balanced sliding valve (SV) that may be opened or closed by reciprocation of the tubing, before and after squeeze cementing.
- Allows pressure testing of workstring.
- Runs in quickly and sets in a wide variety of casing grades.
- Can be set with wireline, tubing, or drillpipe.

EZ DRILL SVB PACKER

- Offers performance features similar to SV model but with additional capabilities.
- The brass mandrel in the SVB model is stronger and more ductile than the cast iron mandrel in the SV model but just as drillable.
- Improved slips allow the packer to be set in all grades of casing up to V150.
- Improved valve performance in high-temperature and high-pressure conditions, especially when the valve is repeatedly cycled.

AVAILABLE FOR TUBINGLESS COMPLETIONS

FASDRILL™ PACKERS AND BRIDGE PLUGS



FASDRILL PACKER

- Helps reduce costs by saving rig time.
- Excellent as a cement retainer for squeeze cementing operations and in multi-zone stimulation operations.
- Drills out with conventional tri-cone or junk-mill bits.
- Very drillable with coiled tubing and mud motors.

FASDRILL BRIDGE PLUG

- Made almost entirely of composites with minimal ferrous content.
- Can be run and set on tubing or drillpipe or with electric wireline.
- Reduces chance of casing damage caused by long drillout processes.

AVAILABLE FOR TUBINGLESS COMPLETIONS

SECTION No. 130

DISPLACEMENT

Table 131	Displacement of Rotary Tool Joints
Table 132	Buoyancy Factors
Table 133	Displacement of Tubing, Upsets, and Couplings
Table 134	Displacement of Drill Pipe, Upsets, and Couplings
Table 135	Displacement of Casing and Couplings

NOTE:

Displacement as used herein is the amount at space taken up by the metal in a string of pipe. For the purpose of calculations the tables show this displacement separated into displacement of pipe, upsets, couplings and tool joints.

The purpose is to show the amount of space taken up by the metal in a string of pipe and to provide a basis for making allowance for couplings, upsets or tool joints, not shown in other tables in this handbook.

When it is desired to make allowance for inner restrictions of upsets, etc., when calculating the capacity of a string of pipe, first determine the capacity exclusive of inner restrictions as shown in tables in the Capacity section, then deduct the amount of inner restrictions determined by using tables in this section.

When it is desired to make allowance for outer extensions of couplings, etc. when calculating annular space behind a string of pipe first determine the volume exclusive of outer extensions, (couplings, etc.) by using the tables in the Annular Space Section. then deduct the amount of outer extension determined by using tables in this section.

NOTE:

There are some differences in the values in these tables and those previously published. The differences are slight and the former values are sufficiently accurate for dependable results. The values in these tables have been calculated on the IBM 1620 Computer.

HALLIBURTON

Copyright © 1995, 1999, 2001
Halliburton Company

ALL RIGHTS RESERVED

TABLE NO. 131

DISPLACEMENT OF ROTARY TOOL JOINTS*

A.P.I. Size (Ins.)	Inner Restriction of Tool Joints**		Outer Extension of Tool Joints	
	(Amount of space taken up by metal smaller than the I.D. of drill pipe)		(Amount of space taken up by metal larger than the O.D. of drill pipe)	
	Tool Jts. Per Gallon	Tool Jts. Per Cu. Ft.	Tool Jts. Per Gallon	Tool Jts. Per Cu. Ft.
2 ³ / ₈	28.30	211.68	3.71	27.72
2 ⁷ / ₈	22.06	164.97	2.38	17.79
3 ¹ / ₂	15.55	116.32	1.94	14.47
4	49.85	372.84	0.86	6.45
4 ¹ / ₂	7.79	58.26	1.10	8.25
5 ¹ / ₂	2.62	19.62	0.78	5.86
6 ⁵ / ₈	1.33	9.98	0.68	5.05

*Figures show average displacement for the various types of Standard API tool joints for each size.

**The amount of inner Restriction is approximate, as the API standards do not specify all the internal dimensions.

TABLE NO. 132
BUOYANCY FACTORS FOR STEEL PIPE
IN VARIOUS WEIGHT FLUIDS
(Fluid Density — lb./gal.)

Lb./Gal.	Buoyancy Factor	Lb./Gal.	Buoyancy Factor	Lb./Gal.	Buoyancy Factor
6.0	.9083	11.0	.8319	16.0	.7555
6.1	.9068	11.1	.8304	16.1	.7540
6.2	.9053	11.2	.8289	16.2	.7524
6.3	.9037	11.3	.8273	16.3	.7509
6.4	.9022	11.4	.8258	16.4	.7494
6.5	.9007	11.5	.8243	16.5	.7479
6.6	.8991	11.6	.8227	16.6	.7463
6.7	.8976	11.7	.8212	16.7	.7448
6.8	.8961	11.8	.8197	16.8	.7433
6.9	.8946	11.9	.8182	16.9	.7417
7.0	.8930	12.0	.8166	17.0	.7402
7.1	.8915	12.1	.8151	17.1	.7387
7.2	.8900	12.2	.8136	17.2	.7372
7.3	.8884	12.3	.8120	17.3	.7356
7.4	.8869	12.4	.8105	17.4	.7341
7.5	.8854	12.5	.8090	17.5	.7326
7.6	.8839	12.6	.8075	17.6	.7311
7.7	.8823	12.7	.8059	17.7	.7295
7.8	.8808	12.8	.8044	17.8	.7280
7.9	.8793	12.9	.8029	17.9	.7265
8.0	.8778	13.0	.8013	18.0	.7249
8.1	.8762	13.1	.7998	18.1	.7234
8.2	.8747	13.2	.7983	18.2	.7219
8.3	.8732	13.3	.7968	18.3	.7204
8.33*	.8727	13.4	.7952	18.4	.7188
8.4	.8716	13.5	.7937	18.5	.7173
8.5	.8701	13.6	.7922	18.6	.7158
8.6	.8686	13.7	.7906	18.7	.7142
8.7	.8671	13.8	.7891	18.8	.7127
8.8	.8655	13.9	.7876	18.9	.7112
8.9	.8640	14.0	.7861	19.0	.7097
9.0	.8625	14.1	.7845	19.1	.7081
9.1	.8609	14.2	.7830	19.2	.7066
9.2	.8594	14.3	.7815	19.3	.7051
9.3	.8579	14.4	.7800	19.4	.7035
9.4	.8564	14.5	.7784	19.5	.7020
9.5	.8548	14.6	.7769	19.6	.7005
9.6	.8533	14.7	.7754	19.7	.6990
9.7	.8518	14.8	.7738	19.8	.6974
9.8	.8502	14.9	.7723	19.9	.6960
9.9	.8487	15.0	.7708	20.0	.6944
10.0	.8472	15.1	.7693		
10.1	.8457	15.2	.7677		
10.2	.8441	15.3	.7662		
10.3	.8426	15.4	.7647		
10.4	.8411	15.5	.7631		
10.5	.8395	15.6	.7616		
10.6	.8380	15.7	.7601		
10.7	.8365	15.8	.7586		
10.8	.8350	15.9	.7570		
10.9	.8334				

FOR OPEN ENDED PIPE

Pipe Wt. (in Fluid) = Pipe Wt. (In Air) x Buoyancy Factor

*Weight of Water at 68°F (20°C)

TABLE

DISPLACEMENT OF API TUBING, EXTERNAL

Size O.D. (Inches)	Wt. Per Ft. With Couplings Lbs.	I.D. (Inches)	Drift Dia.	Displacement of Tubing†	
				Lin. Ft. Per Gallon	Lin. Ft. Per Cu. Ft.
1.050	1.14	.824	.730	57.8712	432.9070
	*1.20	.824	.730	57.8712	432.9070
1.315	1.7	1.049	.955	38.9773	291.5705
	‡1.72	1.049	.955	38.9773	291.5705
	*1.80	1.049	.955	38.9773	291.5705
	‡2.25	.957	.848	30.1335	225.4143
1.660	‡2.10	1.410	1.286	31.9347	238.8879
	2.3	1.380	1.286	28.7945	215.3977
	‡2.33	1.380	1.286	28.7945	215.3977
	*2.40	1.380	1.286	28.7945	215.3977
	‡3.02	1.278	1.184	21.8387	163.3645
1.900	‡2.40	1.650	1.516	27.6167	206.5876
	2.75	1.610	1.516	24.0789	180.1223
	‡2.76	1.610	1.516	24.0789	180.1223
	*2.90	1.610	1.516	24.0789	180.1223
	‡3.64	1.500	1.406	18.0220	134.8137
2.063	‡3.25	1.751	1.657	20.5971	154.0768
2.375	4.00	2.041	1.947	16.6175	124.3074
	4.60	1.995	1.901	14.7596	110.4098
	*4.70	1.995	1.901	14.7596	110.4098
	‡5.30	1.939	1.845	13.0309	97.4779
	5.80	1.867	1.773	11.3738	85.0821
	*5.95	1.867	1.773	11.3738	85.0821
	‡6.20	1.853	1.759	11.1054	83.0744
	‡7.70	1.703	1.609	8.9438	66.9046

* External upset

‡ Integral Joint

† Figures show the amount of space taken up by the metal in the tubing, exclusive of outer extensions of upsets and couplings.

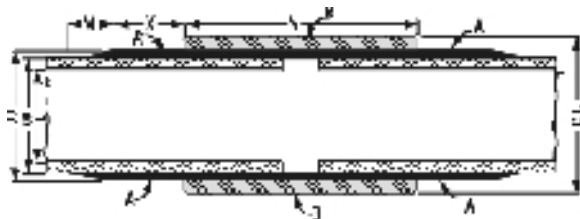
NO. 133

UPSETS, COUPLINGS, & INTEGRAL JOINTS

Displacement of External Upsets**		Displacement of Couplings***		Displacement of Integral Joints		Size O.D. (Inches)
Pair of Upsets Per Gallon	Pair of Upsets Per cu. Ft.	Cplgs. Per Gallon	Cplgs. Per Cu. Ft.	Joints Per Gallon	Joints Per Cu. Ft.	
— 135.53	— 1013.84	188.9 59.4	1413.0 444.6	— —	— —	1.050
— 197.04 —	— 1473.97 —	108.7 — 49.4 —	812.8 — 369.5 —	— 168.53 — 73.37	— 1260.71 — 548.62	1.315
— — 159.90 —	— — 1196.13 —	— 68.9 — 42.2 —	— 515.2 — 315.9 —	126.65 — 134.55 — 67.76	947.42 — 1006.47 — 506.86	1.660
— — 108.99 —	— — 815.29 —	— 81.8 — 31.9 —	— 612.1 — 238.8 —	106.53 — 116.14 — 56.63	796.89 — 868.80 — 423.63	1.900
—	—	108.1	808.7	84.11	629.22	2.063
— 52.89 — — 52.89 — —	— 395.63 — — 395.63 — —	30.4 31.0 17.7 — 32.7 18.3 —	227.3 231.7 132.7 — 244.4 136.8 —	— — — 34.2 — — 20.58 15.81	— — — 255.81 — — 153.92 118.28	2.375

** Figures show the amount of space taken up by a pair of upsets above the O.D. of tubing as indicated in drawings below by the solid black area marked A-A'. As there are two upsets in each joint of tubing the upsets are figured in pairs; therefore, when using this table, it is only necessary to divide the number of joints of tubing by the above figures.

*** Figures show the amount of space taken up by metal in Couplings larger than the O.D. of the tubing.



TABLE

DISPLACEMENT OF API TUBING, EXTERNAL

Size O.D. (Inches)	Wt. Per Ft. With Couplings Lbs.	I.D. (Inches)	Drift Dia. In.	Displacement of Tubing†		
				Lin. Ft. Per Gallon	Lin. Ft. Per Cu. Ft.	
2.875	6.40	2.441	2.347	10.6235	79.4690	
	*6.50	2.441	2.347	10.6235	79.4690	
	‡7.90	2.323	2.229	8.5421	63.8995	
	8.60	2.259	2.165	7.7500	57.9744	
	*8.70	2.259	2.165	7.7500	57.9744	
	‡9.50	2.195	2.101	7.1093	53.1809	
	‡10.70	2.091	1.997	6.2953	47.0923	
	‡11.00	2.065	1.971	6.1253	45.8206	
	3.500	7.70	3.068	2.943	8.6382	64.6183
		9.20	2.992	2.867	7.4319	55.5943
*9.30		2.992	2.867	7.4319	55.5943	
10.20		2.922	2.797	6.6030	49.3940	
12.70		2.750	2.625	5.2288	39.1139	
*12.95		2.750	2.625	5.2288	39.1139	
‡12.80		2.764	2.639	5.3163	39.7689	
‡15.80		2.548	2.423	4.2569	31.8437	
‡16.70		2.480	2.355	4.0183	30.0588	
4.000		9.50	3.548	3.423	7.1841	53.7406
	*11.00	3.476	3.351	6.2566	46.8028	
	‡11.60	3.428	3.303	5.7686	43.1524	
	‡13.40	3.340	3.215	5.0594	37.8471	
4.500	12.60	3.958	3.833	5.3466	39.9950	
	*12.75	3.958	3.833	5.3466	39.9950	
	‡13.50	3.920	3.795	5.0188	37.5433	
	‡15.50	3.826	3.701	4.3676	32.6720	
	‡19.20	3.640	3.515	3.5012	26.1909	

* External upset

‡ Integral Joint

† Figures show the amount of space taken up by the metal in the tubing, exclusive of outer extensions of upsets and couplings.

NO. 134

UPSETS, COUPLINGS, & INTEGRAL JOINTS

Displacement of External Upsets**		Displacement of Couplings***		Displacement of Integral Joints		Size O.D. (Inches)
Pair of Upsets Per Gallon	Pair of Upsets Per cu. Ft.	Cplgs. Per Gallon	Cplgs. Per Cu. Ft.	Joints Per Gallon	Joints Per Cu. Ft.	
—	—	16.2	121.5	—	—	2.875
42.96	321.34	11.8	88.2	—	—	
—	—	—	—	17.17	128.43	
—	—	17.0	127.5	—	—	
42.96	321.34	12.2	91.4	—	—	
—	—	—	—	13.02	97.39	
—	—	—	—	11.69	87.42	
—	—	—	—	10.94	81.81	
—	—	9.9	73.7	—	—	3.500
—	—	10.0	74.8	—	—	
30.98	231.72	6.9	51.5	—	—	
—	—	10.1	75.9	—	—	
—	—	10.5	78.6	—	—	
30.98	231.72	7.1	53.3	—	—	
—	—	—	—	8.47	63.37	
—	—	—	—	7.51	56.21	
—	—	—	—	7.07	52.90	
—	—	8.6	64.1	—	—	4.000
28.58	213.78	5.9	43.9	—	—	
—	—	—	—	9.75	72.94	
—	—	—	—	—	—	
—	—	7.9	59.5	—	—	4.500
24.27	181.53	4.7	35.3	—	—	
—	—	—	—	—	—	
—	—	—	—	8.72	65.25	
—	—	—	—	6.37	47.68	

** Figures show the amount of space taken up by a pair of upsets above the O.D. of tubing as indicated in drawings below by the solid black area marked A-A. As there are two upsets in each joint of tubing the upsets are figured in pairs; therefore, when using this table, it is only necessary to divide the number of joints of tubing by the above figures.

*** Figures show the amount of space taken up by metal in Couplings larger than the O.D. of the tubing.

TABLE

DISPLACEMENT OF API DRILL PIPE

Size O.D. (Inches)	Wt. Per Ft. With Couplings Lbs.	I.D. (Inches)	Displacement of Drill Pipe*	
			Lin. Ft. Per Gallon	Lin. Ft. Per Cu. Ft.
2 ³ / ₈	‡4.80	2.000	14.9393	111.7541
	4.85	1.995	14.7596	110.4098
	6.65	1.815	10.4457	78.1395
2 ⁷ / ₈	‡6.45	2.469	11.2966	84.5046
	6.85	2.441	10.6235	79.4691
	‡8.35	2.323	8.5421	63.8995
	10.40	2.151	6.7357	50.3862
3 ¹ / ₂	8.50	3.063	8.5459	63.9277
	9.50	2.992	7.4319	55.5943
	‡11.20	2.900	6.3828	47.7465
	13.30	2.764	5.3163	39.7689
4	15.50	2.602	4.4729	33.4599
	11.85	3.476	6.2570	46.8030
4 ¹ / ₂	14.00	3.340	5.0594	37.8471
	‡12.75	4.000	5.7670	43.1404
5	‡13.75	3.958	5.3466	39.9950
	16.60	3.826	4.3676	32.6720
	20.00	3.640	3.5012	26.1909
	16.25	4.408	4.4007	32.9195
5 ¹ / ₂	19.50	4.276	3.6496	27.3007
	21.90	4.778	3.3029	24.7074
‡5 ⁹ / ₁₆	24.70	4.670	2.9036	21.7207
	19.00	4.975	3.9555	29.5895
	22.20	4.859	3.3405	24.9890
‡6 ⁵ / ₈	25.25	4.733	2.8681	21.4549
	22.20	6.065	3.4490	25.8002
	25.20	5.965	2.9497	22.0649
‡7 ⁵ / ₈	31.90	5.761	2.2903	17.1328
	29.25	6.969	2.5601	19.1511
‡8 ⁵ / ₈	40.00	7.825	1.8625	13.9321

‡ Not API Standard. Shown for information only.

* Figures show the amount of space taken up by the metal in the drill pipe, exclusive of the inner restrictions and outer extensions of Upsets, Couplings and Tool Joints.

NO. 134

INTERNAL UPSETS AND COUPLINGS

Displacement of Internal Upsets**		Displacement of Couplings***		Weight Per Ft. With Cplgs. (Lbs.)	Size O.D. (Inches)
Pairs of Upsets Per Gallon	Pairs of Upsets Per Cu. Ft.	Cplgs. Per Gallon	Cplgs. Per Cu. Ft.		
18.82	140.79	14.11	105.56	‡4.80	2 ³ / ₈
19.05	142.10	—	—	4.85	
20.28	151.70	14.67	109.75	6.65	
13.30	99.51	8.35	62.44	‡6.45	2 ⁷ / ₈
14.10	105.82	—	—	6.85	
14.22	106.40	8.54	63.86	‡8.35	
12.07	90.32	8.76	65.51	10.40	
9.99	74.73	8.51	63.67	8.50	3 ¹ / ₂
11.50	85.95	—	—	9.50	
10.70	80.02	8.79	65.75	‡11.20	
10.39	77.73	9.02	67.50	13.30	
11.68	87.41	9.30	69.59	15.50	
15.47	115.73	4.83	36.16	11.85	4
5.28	39.46	4.92	36.79	14.00	
4.78	35.77	3.91	29.25	‡12.75	4 ¹ / ₂
4.53	33.91	3.93	29.40	‡13.75	
3.92	29.29	3.99	29.86	16.60	
5.05	37.79	4.08	30.50	20.00	
4.12	30.23	—	—	16.25	5
6.97	52.17	3.66	27.35	19.50	
3.39	25.39	2.41	18.06	21.90	5 ¹ / ₂
2.88	21.56	2.44	18.23	24.70	
3.39	25.35	2.51	18.76	19.00	‡5 ⁹ / ₁₆
3.06	22.89	2.54	18.97	22.20	
2.69	20.14	2.57	19.20	25.25	
2.69	20.16	2.14	16.00	22.20	‡6 ⁵ / ₈
2.67	20.00	2.16	16.15	25.20	
2.42	18.10	2.20	16.48	31.90	
2.00	14.94	1.55	11.56	29.25	‡7 ⁵ / ₈
1.29	9.64	1.16	8.66	40.00	‡8 ⁵ / ₈

** Figures show the amount of space taken up by metal in a pair of upsets smaller than the I.D. of drillpipe. As there are two upsets in each joint of drill pipe the upsets are figured in pairs; therefore, when using this table, it is only necessary to divide the number of joints of drill pipe by the above figures.

*** Figures show the amount of space taken up by metal in Couplings larger than the O.D. of drill pipe.

For restrictions and extensions of tool joints see Table 131.

TABLE
DISPLACEMENT OF

Size O.D. (In.)	Wt. Per Ft. With Cplgs. Lbs.	Inside Dia. In.	Drift Dia. In.	Displacement of Casing**		Displacement of Couplings (Long)***	
				Lin. Ft. Per Gallon	Lin. Ft. Per Cu. Ft.	Cplgs. Per Gal.	Cplgs. Per Cu. Ft.
4 ¹ / ₂	9.50	4.090	3.965	6.959	52.059	—	—
	10.50	4.052	3.927	6.397	47.855	—	—
	11.60	4.000	3.875	5.767	43.140	10.14	75.9
	13.50	3.920	3.795	5.019	37.543	10.37	77.6
	15.10	3.826	3.701	4.368	32.672	10.64	79.6
	*16.60	3.754	3.629	3.980	29.776	—	—
	*18.80	3.640	3.515	3.501	26.191	—	—
*4 ³ / ₄	16.00	4.082	3.957	4.154	31.077	7.23	54.1
5	11.50	4.560	4.435	5.827	43.588	—	—
	13.00	4.494	4.369	5.102	38.166	7.12	53.3
	15.00	4.408	4.283	4.401	32.920	7.26	54.3
	18.00	4.276	4.151	3.650	27.301	7.47	55.9
	*20.30	4.184	4.059	3.270	24.465	—	—
	*20.80	4.156	4.031	3.172	23.726	7.67	57.4
	*23.20	4.044	3.919	2.835	21.206	—	—
*24.20	4.000	3.875	2.723	20.372	7.93	59.3	
5 ¹ / ₂	*13.00	5.044	4.919	5.098	38.133	—	—
	14.00	5.012	4.887	4.778	35.741	—	—
	15.50	4.950	4.825	4.264	31.900	6.53	48.8
	17.00	4.892	4.767	3.879	29.018	6.61	49.4
	20.00	4.778	4.653	3.303	24.707	6.78	50.7
	23.00	4.670	4.545	2.904	21.721	6.94	51.9
	*26.00	4.548	4.423	2.562	19.167	—	—
*5 ³ / ₄	14.00	5.290	5.165	4.826	36.103	—	—
	17.00	5.190	5.065	4.001	29.927	—	—
	19.50	5.090	4.965	3.426	25.627	—	—
	22.50	4.990	4.865	3.003	22.462	5.47	40.9
*6	15.00	5.524	5.399	4.468	33.424	—	—
	18.00	5.424	5.299	3.725	27.863	4.86	36.4
	20.00	5.352	5.227	3.332	24.924	4.93	36.8
	23.00	5.240	5.115	2.869	21.463	5.03	37.6
	26.00	5.140	5.015	2.537	18.975	5.12	38.3
6 ⁵ / ₈	*17.00	6.135	6.010	3.920	29.324	—	—
	20.00	6.049	5.924	3.357	25.115	3.40	25.4
	24.00	5.921	5.796	2.775	20.758	3.46	25.9
	28.00	5.791	5.666	2.367	17.706	3.52	26.4
	32.00	5.675	5.550	2.098	15.691	3.58	26.8
7	17.00	6.538	6.413	3.919	29.314	—	—
	20.00	6.456	6.331	3.348	25.047	—	—
	23.00	6.366	6.241	2.892	21.636	3.77	28.2
	*24.00	6.336	6.211	2.768	20.705	3.79	28.3
	26.00	6.276	6.151	2.550	19.075	3.82	28.6
	29.00	6.184	6.059	2.278	17.043	3.88	29.0
	32.00	6.094	5.969	2.066	15.455	3.94	29.5
	35.00	6.004	5.879	1.892	14.156	4.00	29.9
	38.00	5.920	5.795	1.757	13.140	4.05	30.3

* Not API Standard. Shown for information only.

** Figures show the amount of space taken up by the metal in the casing, exclusive of the outer extensions of couplings.

NO. 135

UPSETS, COUPLINGS, & INTEGRAL JOINTS

Displacement of Cplgs. (Short)**		Displacement of Cplgs. Buttress***		Displacement of Extreme Line Joints***		Size O.D. (In.)
Cplgs. Per Gallon	Cplgs. Per cu. Ft.	Cplgs. Per Gallon	Cplgs. Per Cu. Ft.	Joints Per Gallon	Joints Per Cu. Ft.	
13.51	101.1	—	—	—	—	4½
11.38	85.1	7.7	57.4	—	—	
11.56	86.5	7.8	58.0	—	—	
—	—	7.9	59.0	—	—	
—	—	7.9	59.0	—	—	
—	—	—	—	—	—	
—	—	—	—	—	—	
8.94	66.8	—	—	—	—	*4¾
9.09	68.0	—	—	—	—	5
8.69	65.0	5.9	44.5	—	—	
8.89	66.5	6.0	45.2	6.5	48.6	
—	—	6.2	46.3	8.4	62.7	
—	—	—	—	—	—	
—	—	6.3	47.3	—	—	
—	—	6.5	48.6	—	—	
8.25	61.7	—	—	—	—	5½
7.79	58.3	—	—	—	—	
7.92	59.3	5.5	41.5	5.8	43.6	
8.04	60.2	5.6	42.0	6.1	45.5	
—	—	5.7	42.9	7.6	57.2	
—	—	5.8	43.7	7.9	59.4	
—	—	—	—	—	—	
5.37	40.1	—	—	—	—	*5¾
5.50	41.1	—	—	—	—	
5.63	42.1	—	—	—	—	
5.77	43.2	—	—	—	—	
5.91	44.2	—	—	—	—	*6
6.05	45.2	—	—	—	—	
6.14	46.0	—	—	—	—	
6.30	47.1	—	—	—	—	
—	—	—	—	—	—	—
4.11	30.8	—	—	—	—	6⅝
4.18	31.2	3.1	22.9	—	—	
4.27	31.9	3.1	23.3	5.4	40.4	
—	—	3.2	23.7	6.4	47.6	
—	—	3.2	24.0	6.4	47.6	
5.44	40.7	—	—	—	—	7
4.71	35.3	—	—	—	—	
4.80	35.9	3.4	25.1	4.5	33.5	
4.83	36.2	—	—	—	—	
4.89	36.6	3.4	25.4	5.3	39.6	
—	—	3.4	25.8	5.8	43.5	
—	—	3.5	26.1	5.8	43.4	
—	—	3.5	26.4	3.9	29.2	
—	—	3.6	26.8	3.9	29.4	

*** Figures show the amount of space taken up by metal in couplings larger than the O.D. of Casings.

TABLE
DISPLACEMENT OF

Size O.D. (In.)	Wt. Per Ft. With Cplgs. Lbs.	Inside Dia. In.	Drift Dia. In.	Displacement of Casing**		Displacement of Couplings (Long)***	
				Lin. Ft. Per Gallon	Lin. Ft. Per Cu. Ft.	Cplgs. Per Gal.	Cplgs. Per Cu. Ft.
7 ⁵ / ₈	*20.00	7.125	7.000	3.323	24.861	—	—
	24.00	7.025	6.900	2.788	20.859	—	—
	26.40	6.969	6.844	2.560	19.151	2.43	18.2
	29.70	6.875	6.750	2.254	16.859	2.46	18.4
	33.70	6.765	6.640	1.981	14.815	2.49	18.6
	39.00	6.625	6.500	1.720	12.866	2.53	18.9
	*45.30	6.435	6.310	1.465	10.958	2.58	19.3
*8	26.00	7.386	7.261	2.594	19.408	—	—
*8 ¹ / ₈	28.00	7.485	7.360	2.453	18.352	—	—
	32.00	7.385	7.260	2.135	15.975	—	—
	35.50	7.285	7.160	1.893	14.164	—	—
	39.50	7.185	7.060	1.703	12.740	—	—
8 ⁶ / ₈	24.00	8.097	7.972	2.776	20.766	—	—
	28.00	8.017	7.892	2.422	18.120	—	—
	32.00	7.921	7.796	2.104	15.740	1.72	12.9
	36.00	7.825	7.700	1.862	13.932	1.74	13.0
	40.00	7.725	7.600	1.666	12.460	1.75	13.1
	44.00	7.625	7.500	1.508	1.283	1.77	13.2
	49.00	7.511	7.386	1.364	10.200	1.79	13.4
*9	34.00	8.290	8.134	1.997	14.935	1.61	12.1
	38.00	8.196	8.040	1.773	13.261	1.63	12.2
	40.00	8.150	7.994	1.681	12.577	1.63	12.2
	45.00	8.032	7.876	1.487	11.121	1.65	12.3
9 ⁵ / ₈	*29.30	9.063	8.907	2.334	17.457	—	—
	32.30	9.001	8.845	2.109	15.775	—	—
	36.00	8.921	8.765	1.877	14.043	1.47	11.0
	40.00	8.835	8.679	1.681	12.572	1.49	11.1
	43.50	8.755	8.599	1.533	11.466	1.50	11.2
	47.00	8.681	8.525	1.418	10.610	1.51	11.3
	53.50	8.535	8.379	1.238	9.263	1.53	11.4
	*58.40	8.435	8.279	1.140	8.531	1.54	11.5
	*61.10	8.375	8.219	1.089	8.149	1.55	11.6
	*71.80	8.125	7.969	.921	6.886	1.58	11.8
*10	33.00	9.384	9.228	2.053	15.355	—	—
10 ³ / ₄	32.75	10.192	10.036	2.097	15.690	—	—
	40.50	10.050	9.894	1.683	12.592	—	—
	45.50	9.950	9.794	1.480	11.072	—	—
	51.00	9.850	9.694	1.322	9.889	—	—
	55.50	9.760	9.604	1.207	9.030	—	—
	60.70	9.660	9.504	1.102	8.241	—	—
	65.70	9.560	9.404	1.014	7.586	—	—
	*71.10	9.450	9.294	.933	6.982	—	—

* Not API Standard. Shown for information only.

** Figures show the amount of space taken up by the metal in the casing, exclusive of the outer extensions of couplings.

NO. 135

CASING AND COUPLINGS

Displacement of Cplgs. (Short)**		Displacement of Cplgs. Buttress***		Displacement of Extreme Line Joints***		Size O.D. (In.)
Cplgs. Per Gallon	Cplgs. Per cu. Ft.	Cplgs. Per Gallon	Cplgs. Per Cu. Ft.	Joints Per Gallon	Joints Per Cu. Ft.	
3.17	23.7	—	—	—	—	7 ¹ / ₈
3.03	22.7	—	—	—	—	
3.06	22.9	2.1	16.1	4.1	30.9	
—	—	2.2	16.2	4.9	36.9	
—	—	2.2	16.4	5.4	40.6	
—	—	2.2	16.7	5.4	40.6	
—	—	2.3	17.0	—	—	
2.76	20.7	—	—	—	—	*8
1.91	14.3	—	—	—	—	*8 ¹ / ₈
1.94	14.5	—	—	—	—	
1.96	14.7	—	—	—	—	
1.99	14.8	—	—	—	—	
2.33	17.5	—	—	—	—	8 ⁵ / ₈
2.24	16.8	—	—	—	—	
2.27	17.0	1.6	12.1	2.3	17.3	
2.29	17.2	1.6	12.2	2.6	19.8	
—	—	1.6	12.3	2.8	20.9	
—	—	1.7	12.4	2.8	21.0	
—	—	1.7	12.5	2.8	21.0	
2.18	16.3	—	—	—	—	*9
2.20	16.5	—	—	—	—	
2.22	16.6	—	—	—	—	
2.25	16.8	—	—	—	—	
2.05	15.3	—	—	—	—	9 ⁵ / ₈
2.02	15.1	—	—	—	—	
2.04	15.3	1.5	10.9	—	—	
2.07	15.5	1.5	11.0	2.2	16.6	
2.09	15.6	1.5	11.0	2.5	18.7	
2.11	15.8	1.5	11.1	2.6	19.6	
2.14	16.0	1.5	11.3	2.6	19.6	
—	—	1.5	11.4	—	—	
—	—	1.5	11.4	—	—	
—	—	1.6	11.7	—	—	
1.94	14.5	—	—	—	—	*10
1.95	14.6	—	—	—	—	10 ³ / ₄
1.78	13.3	1.3	9.8	—	—	
1.80	13.5	1.3	9.9	1.3	9.7	
1.82	13.6	1.3	10.0	1.3	9.7	
1.84	13.8	1.3	10.1	1.3	9.7	
1.86	13.9	—	—	—	—	
1.89	14.1	—	—	—	—	
1.91	14.3	1.4	10.3	—	—	

*** Figures show the amount of space taken up by metal in couplings larger than the O.D. of Casings.

TABLE
DISPLACEMENT OF

Size O.D. (In.)	Wt. Per Ft. With Cplgs. Lbs.	Inside Dia. In.	Drift Dia. In.	Displacement of Casing**		Displacement of Couplings (Long)***	
				Lin. Ft. Per Gallon	Lin. Ft. Per Cu. Ft.	Cplgs. Per Gal.	Cplgs. Per Cu. Ft.
11 ³ / ₄	*38.00	11.150	10.994	1.784	13.344	—	—
	42.00	11.084	10.928	1.612	12.056	—	—
	47.00	11.000	10.844	1.436	10.746	—	—
	54.00	10.880	10.724	1.245	9.313	—	—
	60.00	10.772	10.616	1.113	8.324	—	—
*12	40.00	11.384	11.228	1.702	12.728	—	—
*13	40.00	12.438	12.282	1.714	12.825	—	—
	45.00	12.360	12.204	1.510	11.296	—	—
	50.00	12.282	12.126	1.350	10.100	—	—
	54.00	12.220	12.064	1.246	9.320	—	—
13 ³ / ₈	48.00	12.715	12.559	1.423	10.648	—	—
	54.50	12.615	12.459	1.241	9.282	—	—
	61.00	12.515	12.359	1.101	8.235	—	—
	68.00	12.415	12.259	.990	7.405	—	—
	72.00	12.347	12.191	.927	6.934	—	—
	85.00	12.159	12.003	.789	5.905	—	—
	98.00	11.937	11.781	.673	5.037	—	—
*14	50.00	13.344	13.156	1.366	10.221	—	—
16	*55.00	15.376	15.187	1.252	9.365	—	—
	65.00	15.250	15.062	1.046	7.823	—	—
	75.00	15.124	14.936	.899	6.725	—	—
	84.00	15.010	14.822	.798	5.972	—	—
	*109.00	14.688	14.500	.609	4.554	—	—
*18 ⁵ / ₈	78.00	17.855	17.667	.873	6.527	—	—
	87.50	17.755	17.567	.774	5.793	—	—
	96.50	17.655	17.467	.696	5.210	—	—
20	94.00	19.124	18.936	.715	5.350	—	—
	106.50	19.000	18.812	.628	4.701	.68	5.1
	133.00	18.730	18.542	.498	3.728	.70	5.2
*21 ¹ / ₂	92.50	20.710	20.522	.735	5.498	—	—
	103.00	20.610	20.422	.654	4.892	—	—
	114.00	20.510	20.322	.589	4.408	—	—
*24 ¹ / ₂	100.50	23.750	23.562	.677	5.067	—	—
	113.00	23.650	23.462	.599	4.480	—	—

* Not API Standard. Shown for information only.

** Figures show the amount of space taken up by the metal in the casing, exclusive of the outer extensions of couplings.

NO. 133

CASING AND COUPLINGS

Displacement of Cplgs. (Short)**		Displacement of Cplgs. Buttress***		Displacement of Extreme Line Joints***		Size O.D. (In.)
Cplgs. Per Gallon	Cplgs. Per cu. Ft.	Cplgs. Per Gallon	Cplgs. Per Cu. Ft.	Joints Per Gallon	Joints Per Cu. Ft.	
1.68	12.5	—	—	—	—	11 ³ / ₄
1.63	12.2	—	—	—	—	
1.64	12.3	1.2	9.0	—	—	
1.67	12.5	1.2	9.1	—	—	
1.69	12.6	1.2	9.2	—	—	
1.64	12.2	—	—	—	—	*12
1.32	9.9	—	—	—	—	*13
1.34	10.0	—	—	—	—	
1.36	10.2	—	—	—	—	
1.37	10.3	—	—	—	—	
1.44	10.7	—	—	—	—	13 ³ / ₈
1.45	10.9	1.1	8.0	—	—	
1.47	11.0	1.1	8.1	—	—	
1.49	11.2	1.1	8.1	—	—	
1.50	11.3	1.1	8.2	—	—	
1.54	11.5	1.1	8.3	—	—	
1.58	11.9	1.1	8.5	—	—	
1.06	7.9	—	—	—	—	*14
1.06	7.9	—	—	—	—	16
1.08	8.0	—	—	—	—	
1.09	8.2	.9	6.8	—	—	
1.10	8.3	.9	6.9	—	—	
1.15	8.6	.9	7.1	—	—	
.95	7.1	—	—	—	—	*18 ⁵ / ₈
.97	7.2	—	—	—	—	
.98	7.3	—	—	—	—	
.88	6.6	—	—	—	—	20
.80	6.7	—	—	—	—	
.92	6.9	—	—	—	—	
.83	6.2	—	—	—	—	*21 ¹ / ₂
.84	6.3	—	—	—	—	
.85	6.4	—	—	—	—	
.73	5.4	—	—	—	—	*24 ¹ / ₂
.74	5.5	—	—	—	—	

*** Figures show the amount of space taken up by metal in couplings larger than the O.D. of Casings.