CBL Interpretation—Casing Data

The compressive strength of bonded cement (either standard or foamed) can be estimated from the CBL amplitude recording using Chart M-1.

Enter the nomograph with the CBL amplitude in mV; then follow diagonal lines to the appropriate casing size. This defines signal attenuation. Connect this value with the casing thickness to estimate the compressive strength of the cement.

Example: CBL amplitude = 3.5 mV
Casing size = 7 in.
Casing thickness = 0.41 in. (7 in. 29 lbm)
Cement is standard
Therefore, Signal attenuation = 8.9 dB/ft or 29.2 dB/m
and Compressive strength = 2100 psi or 14.5 mPa

Data for Threaded Nonupset Casing

OD (in.)	Weight† per ft (lbm)	Nominal ID (in.)	Drift Diameter‡ (in.)
4	11.60	3.428	3.303
4½	9.50	4.090	3.965
	11.60	4.000	3.875
	13.50	3.920	3.795
4¾	16.00	4.082	3.957
5	11.50	4.560	4.435
	13.00	4.494	4.369
	15.00	4.408	4.283
	17.70	4.300	4.175
	18.00	4.276	4.151
	21.00	4.154	4.029
5½	13.00	5.044	4.919
	14.00	5.012	4.887
	15.00	4.974	4.849
	15.50	4.950	4.825
	17.00	4.892	4.767
	20.00	4.778	4.653
	23.00	4.670	4.545
5¾	14.00	5.290	5.165
	17.00	5.190	5.065
	19.50	5.090	4.965
	22.50	4.990	4.865
6	15.00	5.524	5.399
	16.00	5.500	5.375
	18.00	5.424	5.299
	20.00	5.352	5.227
	23.00	5.240	5.115
6⅝	17.00	6.135	6.010
	20.00	6.049	5.924
	22.00	5.989	5.864
	24.00	5.921	5.796
	26.00	5.855	5.730
	26.80	5.837	5.712
	28.00	5.791	5.666
	29.00	5.761	5.636
	32.00	5.675	5.550
7	17.00	6.538	6.413
	20.00	6.456	6.331
	22.00	6.398	6.273
	23.00	6.366	6.241
	24.00	6.336	6.211
	26.00	6.276	6.151
	28.00	6.214	6.089
	29.00	6.184	6.059
	30.00	6.154	6.029
	32.00	6.094	5.969
	35.00	6.004	5.879
	38.00	5.920	5.795
	40.00	5.836	5.711
7⅝	20.00	7.125	7.000
	24.00	7.025	6.900
	26.40	6.969	6.844
	29.70	6.875	6.750
	33.70	6.765	6.640
	39.00	6.625	6.500
8⅝	24.00	8.097	7.972
	28.00	8.017	7.892
	32.00	7.921	7.796
	36.00	7.825	7.700
	38.00	7.775	7.650
	40.00	7.725	7.600
	43.00	7.651	7.526
	44.00	7.625	7.500
	49.00	7.511	7.386
9	34.00	8.290	8.165
	38.00	8.196	8.071
	40.00	8.150	8.025
	45.00	8.032	7.907
	55.00	7.812	7.687
9⅝	29.30	9.063	8.907
	32.30	9.001	8.845
	36.00	8.921	8.765
	40.00	8.835	8.679
	43.50	8.755	8.599
	47.00	8.681	8.525
	53.50	8.535	8.379
10	33.00	9.384	9.228
10¾	32.75	10.192	10.036
	40.00	10.054	9.898
	40.50	10.050	9.894
	45.00	9.960	9.804
	45.50	9.950	9.794
	48.00	9.902	9.746
	51.00	9.850	9.694
	54.00	9.784	9.628
	55.50	9.760	9.604
11¾	38.00	11.150	10.994
	42.00	11.084	10.928
	47.00	11.000	10.844
	54.00	10.880	10.724
	60.00	10.772	10.616
12	40.00	11.384	11.228
13	40.00	12.438	12.282
13⅜	48.00	12.715	12.559
16	55.00	15.375	15.187
18⅝	78.00	17.855	17.667
20	90.00	19.190	19.002
21½	92.50	20.710	20.522
	103.00	20.610	20.422
	114.00	20.510	20.322
24½	100.50	23.750	23.562
	113.00	23.650	23.462

†Weight per foot in pounds is given for plain pipe (no threads or coupling).

‡Drift diameter is the guaranteed minimum internal diameter of any part of the casing. Use drift diameter to determine the largest-diameter equipment that can be safely run inside the casing. Use internal diameter for volume capacity calculations.