



**Hammer Energy Output and Pile Bearing Chart
J&M Model 220 Hydraulic Impact Hammer**

The energy output is based on the identical Piston/Travel calculations utilized in the **FHWA Gates Formula**. The pile bearing chart is based on the FHWA Gates Formula for pile bearing and is provided for the user's convenience only.

$$\text{Pile Bearing (tons)} = ((1.75 * \text{SQRT "E" LOG}_{10} * 10N) - 100) / 2$$

E = Developed Energy and N = Number of Blows Per Inch

APE has no preference for these particular formulas and calculations over any other.



Ram Weight(lbs): **22,000**

Stroke (in.)	Energy (ft-lbs)	Pile Set (Blows per inch)																			
		<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>	<u>17</u>	<u>18</u>	<u>19</u>	<u>20</u>	
4	7,260	47	60	69	77	83	88	92	96	99	102	105	108	110	112	114	116	118	120	122	
6	11,000	69	86	97	106	113	119	125	129	134	137	141	144	147	150	152	155	157	159	161	
8	14,740	88	107	120	130	139	146	152	158	162	167	171	175	178	181	184	187	190	192	194	
10	18,260	104	125	139	151	160	168	175	181	186	191	196	200	204	207	211	214	217	219	222	
12	22,000	119	142	158	170	181	189	197	204	210	215	220	224	229	232	236	239	243	246	249	
14	25,740	133	157	175	189	200	209	217	224	231	237	242	247	251	255	259	263	267	270	273	
16	29,260	145	171	190	204	216	226	235	242	249	256	261	266	271	276	280	284	288	291	294	
18	33,000	157	185	205	220	233	243	252	261	268	274	280	286	291	296	300	305	308	312	316	
20	36,740	168	198	219	235	248	259	269	278	285	292	299	305	310	315	320	324	328	332	336	
22	40,260	178	209	231	248	262	274	284	293	301	308	315	321	327	332	337	342	346	350	354	
24	44,000	189	221	244	262	276	289	299	309	317	325	332	338	344	349	355	359	364	368	372	
26	47,740	199	232	256	275	290	303	314	324	332	340	348	354	360	366	371	376	381	386	390	
28	51,260	208	243	267	287	302	316	327	337	346	354	362	369	375	381	387	392	397	401	406	
30	55,000	217	253	279	299	315	329	341	351	360	369	377	384	390	397	402	408	413	418	422	
32	58,740	226	263	290	310	327	341	354	364	374	383	391	398	405	411	417	423	428	433	438	
34	62,260	234	272	300	321	338	353	366	377	387	396	404	412	419	425	431	437	442	448	452	
36	66,000	242	282	310	332	350	365	378	389	400	409	417	425	432	439	445	451	457	462	467	
38	69,740	251	291	320	343	361	376	390	402	412	422	430	438	446	453	459	465	471	477	482	
40	73,260	258	300	329	352	371	387	401	413	424	433	442	451	458	465	472	478	484	490	495	
42	77,000	266	309	339	363	382	398	412	424	436	446	455	463	471	478	485	492	498	503	509	
44	80,740	273	317	348	372	392	409	423	436	447	458	467	476	484	491	498	505	511	517	522	
46	84,040	280	325	356	381	401	418	433	446	457	468	477	486	494	502	509	516	522	528	534	
48	88,000	288	333	366	391	412	429	444	457	469	480	490	499	507	515	522	529	535	541	547	