

# APE Model D50-42 Single Acting Diesel Impact Hammer

*D50-42 in a stand-off.*



## MODEL D50-42 (5.0 metric ton ram)

### SPECIFICATIONS

Stroke at maximum rated energy	135 in (343 cm)
Maximum rated energy (Setting 4)	124,031 ft-lbs (167.44 kNm)
Setting 3	102,946 ft-lbs (138.98 kNm)
Setting 2	81,861 ft-lbs (110.51 kNm)
Minimum rated energy (Setting 1)	60,775 ft-lbs (82.05 kNm)
<i>(Variable throttle allows for infinite fuel settings)</i>	

Maximum obtainable stroke	157 in (381 cm)
Maximum obtainable energy	144,243 ft-lbs (196 kNm)
Speed (blows per minute)	34-53

### WEIGHTS (Approximate)

Ram	11,025 lbs (5,000 kg)
Anvil	2,255 lbs (1,023 kg)
Anvil cross sectional area	367.94 in <sup>2</sup> (2373.80 cm <sup>2</sup> )
Hammer weight (includes trip device)	25,882 lbs (11,737 kg)
Typical operating (weight with DB32 and pipe insert)	31,184 lbs (14,142 kg)

### CAPACITIES

Fuel tank (runs on diesel or bio-diesel)	23.1 gal (87.4 liters)
Oil tank	4.4 gal (16.65 liters)

### CONSUMPTION

Diesel or Bio-diesel fuel	4.16 gal/hr (16 liters/hr)
Lubrication	0.39 gal/hr (1.47 liters/hr)
Grease	8 to 10 pumps every 20 minutes of operation time.

*Optional Variable Throttle Control.*



*Drive Base Assembly.*



### STRIKER PLATE

Weight	1,036 lbs (470 kg)
Diameter	25 in (63.5 cm)
Area	491 in <sup>2</sup> (3167.74 cm <sup>2</sup> )
Thickness	8 in (20.32 cm)

### CUSHION MATERIAL

Type/Qty	Micarta / 2 each
Diameter	25 in (63.5 cm)
Thickness	1 in (25.4 mm)

Type/Qty	Aluminum / 3 each
Thickness	1/2 in (12.7 mm)
Diameter	25 in (63.5 cm)
Total Combined Thickness	3.5 in (8.89 cm) 491 in <sup>2</sup>
Area	(3167.74 cm <sup>2</sup> )
Elastic-modulus	285 ksi (1,965 mpa)
Coeff. of restitution	0.8

### DRIVE CAP

DB 32:	2,436 lbs (1,104 kg)
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### INSERT WEIGHT

H-Beam insert for 12" (305 mm) and 14" (355 mm):	948 lbs (430 kg)
Large pipe insert for sizes 12" to 24" diameter:	1,830 lbs (830 kg)

### MINIMUM BOX LEAD SIZE/OPERATING LENGTH

Minimum box leader size	8 in x 32 in (20.32 cm x 81.28 cm)
Operating length as described above	354 in (900 cm)



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## Diesel Hammer Energy Output and Pile Bearing Chart

### APE Model D50-42 Diesel 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.  
 Pile Bearing (tons) =  $((1.75 * \text{SQRT "E" LOG}_{10} * 10N) - 100) / 2000$

*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): 11,025

Blows (per minute)	Stroke (ft)	Energy (ft-lbs)	Pile Set (Blows per inch)																		
			2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
60	4.00	44,100	189	221	244	262	277	289	300	309	318	325	332	338	344	350	355	360	364	369	373
59	4.17	45,974	194	227	251	269	284	296	307	317	325	333	340	347	353	358	364	368	373	378	382
58	4.33	47,738	199	232	256	275	290	303	314	324	332	340	347	354	360	366	371	376	381	386	390
57	4.50	49,613	204	238	262	281	297	310	321	331	340	348	355	362	368	374	380	385	390	394	398
56	4.67	51,487	208	243	268	287	303	316	328	338	347	355	363	370	376	382	388	393	398	402	407
55	4.83	53,251	213	248	273	293	309	323	334	345	354	362	370	377	383	389	395	400	405	410	415
54	5.00	55,125	217	253	279	299	315	329	341	351	361	369	377	384	391	397	403	408	413	418	423
53	5.17	56,999	222	259	285	305	321	335	348	358	368	376	384	392	398	405	410	416	421	426	431
52	5.33	58,763	226	263	290	310	327	341	354	365	374	383	391	398	405	412	418	423	428	433	438
51	5.50	60,638	230	268	295	316	333	348	360	371	381	390	398	405	412	419	425	431	436	441	446
50	5.75	63,394	237	275	303	324	342	356	369	381	391	400	408	416	423	429	436	441	447	452	457
49	6.00	66,150	243	282	311	332	350	365	378	390	400	409	418	426	433	440	446	452	458	463	468
48	6.25	68,906	249	289	318	340	358	374	387	399	409	419	428	436	443	450	456	462	468	473	479
47	6.50	71,663	255	296	325	348	367	382	396	408	418	428	437	445	453	460	466	472	478	484	489
46	6.83	75,301	262	305	335	358	377	393	407	419	430	440	449	458	465	472	479	486	492	497	502
45	7.17	79,049	270	313	344	368	387	404	418	431	442	452	462	470	478	485	492	499	505	511	516
44	7.50	82,688	277	322	353	377	397	414	429	442	453	464	473	482	490	498	505	511	517	523	529
43	7.83	86,326	284	330	362	387	407	424	439	452	464	475	485	493	502	509	517	523	530	536	542
42	8.17	90,074	292	338	371	396	417	435	450	463	475	486	496	505	514	521	529	536	542	548	554
41	8.58	94,595	300	348	381	407	429	447	462	476	488	499	510	519	528	536	543	550	557	563	569
40	9.00	99,225	309	357	392	418	440	459	475	489	501	513	523	533	542	550	558	565	572	578	584
39	9.50	104,738	318	368	404	431	454	472	489	503	516	528	539	549	558	566	574	582	589	595	602
38	10.00	110,250	328	379	415	444	467	486	503	518	531	543	554	564	574	582	590	598	605	612	619
37	10.50	115,763	337	390	427	456	479	499	517	532	545	558	569	579	589	598	606	614	621	628	635
36	11.17	123,149	349	404	442	472	496	517	534	550	564	577	588	599	609	618	627	635	643	650	657