



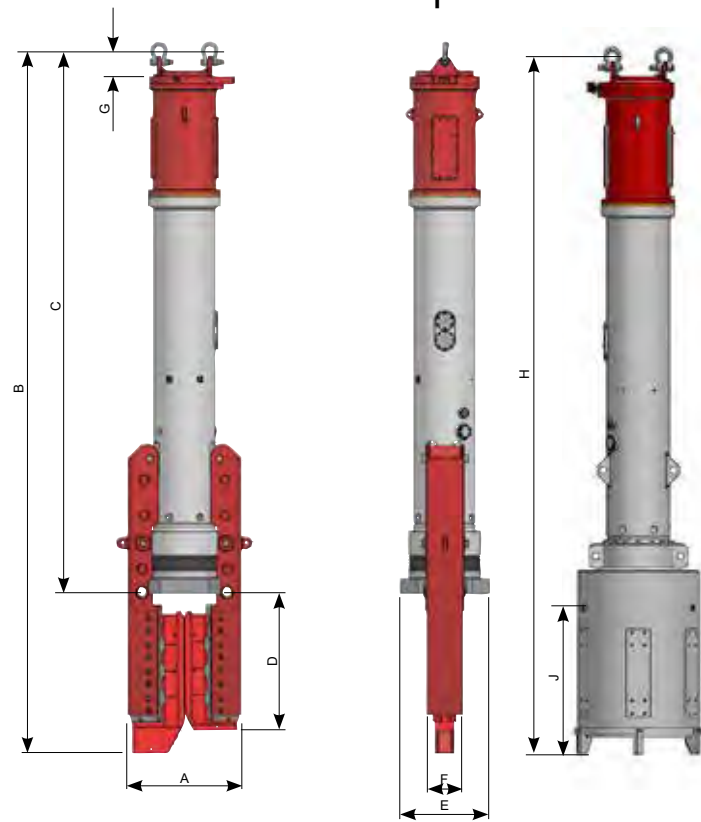
central ram hammers




Principal Advantages

- . Patented drive system
- . Unrivalled production rates - rapid blow rates save time and money, shortening project duration
- . Rapid blow rates - "chisel" through compacted sands, out-driving heavier, slower hammers
- . High energy transfer efficiency to the pile - smaller hammer out performs older more cumbersome equipment
- . Variable energy output - stepless adjustment between limits at the touch of a button, with single or automatic blow regulation, these hammers offer complete control of the driving process
- . Compact, enclosed design - simplifies application and handling whilst protecting vital components
- . Simple integration with alternative power sources - can be operated from hydraulic excavators, hydraulic crawler cranes or non-Dawson hydraulic power packs
- . Versatility - all models are designed to be truly multi-tasking, driving a huge range of pile types either free-hanging or leader mounted
- . All Dawson hammers can operate under water in excess of 100m in depth
- . Hammers can be crane suspended & Rig mounted

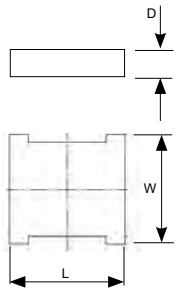
www.dcpuk.com ¹⁰
technical specifications



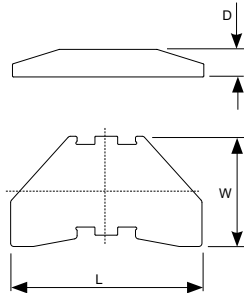
 Weights & dims for guidance only & may vary according to application. Hammers can be leader mounted & configured for most pile types. Please contact Dawsons for further information.

SPECIFICATION	UNITS	Hammer Model			
		HPH2500	HPH5000	HPH10000	
HAMMER					
RAM WEIGHT	kg	2,040	4,068	8,000	
	lbs	4,488	8,968	17,650	
IMPACT VELOCITY	m/s	4.98	5.00	5.00	
	ft/s	16.30	16.36	16.40	
MAXIMUM IMPACT ENERGY	kNm	25	50	100	
	ft lb	18,439	36,878	73,750	
MAXIMUM MOMENTUM	kg.m/s	10,160	20,340	40,000	
	lbs ft/s	73,488	147,120	289,460	
BLOW RATE	bpm	80-120	80-120	60-120	
WEIGHT - WITH SHEET PILE LEGS + SPREADER PLATE	kg	7,000	11,000	18,000	
	lbs	15,400	24,250	39,682	
WEIGHT - WITH GUIDE SLEEVE	Ø914	kg	6,500	10,700	21,000
		lbs	-	-	46,300
	Ø1220	kg	-	-	22,300
		lbs	-	-	49,160
	Ø1450	kg	-	-	24,000
		lbs	-	-	52,900
	Ø1530	kg	-	-	-
		lbs	-	-	-
All dimensions in mm	A	960	1,045	1,316	
	B	5,900	6,530	7,135	
	C	4,600	5,110	5,730	
	D	1,110	1,280	1,266	
GUIDE SLEEVE TO SUIT MAX. TUBE DIA. (mm)	Ø914 Ø1220 Ø1450 Ø1530	E	-	-	6800
		-	-	-	6861
		-	-	-	6800
		-	-	-	-
LEG GUIDES	G	F	-	-	1373
		-	-	-	1375
		-	-	-	1310
		-	-	-	-
LEG GUIDES	G	H	220	128	120
		H	5,810		-
		J	1,183		

spreader plate



TYPICAL SPREADER PLATE PROFILE OF 1-161-00-01



DELTA SPREADER PLATE PROFILE OF 2-174-00-01

HAMMER SPREADER PLATES			
Spreader Plate	Dimensions LxWxD	Type	Hammer Model
1-160-00-01	650 x 530 x 125	Std	HPH1200
1-161-00-01	460 x 434 x 125	Std	HPH1200
1-167-00-01	630 x 480 x 125	Std	HPH1200
1-162-00-01	940 x 440 x 125-130	Std	HPH1200
18-160-00-01	550 x 530 x 125	Std	HPH1800
18-167-00-01	870 x 515 x 125	Std	HPH1800
18-166-00-01	1020 x 600 x 125	Delta	HPH1800
18-168-00-01	630 x 480 x 125	Std	HPH1800
18-162-00-01	940 x 500 x 125-130	Std	HPH1800
18-169-00-01	706 x 530 x 125	Std	HPH1800
2-100-03-01	760 x 610 x 125	Std	HPH2400
2-165-00-01	900 x 560 x 125	Std	HPH2400
2-171-00-01	1060 x 690 x 125	Std	HPH2400
2-166-00-01	1060 x 635 x 125	Std	HPH2400
2-164-00-01	870 x 610 x 125	Std	HPH2400
2-161-00-01	552 x 580 x 125	Std	HPH2400
2-160-00-01	970 x 510 x 120	Std	HPH2400
2-162-00-01	940 x 600 x 125	Std	HPH2400
2-170-00-01	706 x 610 x 125	Std	HPH2400
2-172-00-01	1100 x 730 x 170	Std	HPH2400
2-173-00-01	970 x 745 x 120	Std	HPH2400
2-174-00-01	1800 x 680 x 170	Delta	HPH2400
2-175-00-01	1180 x 683 x 170	Delta	HPH2400
2-176-00-01	1180 x 780 x 170	Delta	HPH2400
2-177-00-01	950 x 610 x 170	Std	HPH2400
2-178-00-01	900 x 580 x 170	Std	HPH2400
2-180-00-01	1220 x 694 x 190	Delta	HPH2400
45-160-00-01	840 x 610 x 170	Std	HPH4500
45-160-03-01	1040 x 730 x 170	Delta	HPH4500
45-160-01-01	1060 x 730 x 170	Std	HPH4500
45-160-04-01	1240 x 730 x 230	Delta	HPH4500
45-160-05-01	1260 x 730 x 230	Std	HPH4500
6-005-31-02	780 x 800 x 230	Std	HPH6500
6-005-32-02	780 x 1190 x 230	Std	HPH6500
6-005-33-02	780 x 1040 x 230	Std	HPH6500
6-005-30-02	Ø975 x 170	Std	HPH6500
6-005-42-01	1190 x 780 x 230	Delta	HPH6500
6-005-43-01	1070 x 780 x 230	Delta	HPH6500

bearing capacity

The Bearing Capacities tabulated below are based on the Hiley Formula;

Bearing Capacity (tonnes) = Blow Efficiency x $E/(s+2.54)$, where
 E =Hammer Energy (kg.m), s =Final Set per Blow (mm/blow).

Blow efficiency for a hydraulic hammer is typically around 80% and adding a safety factor of 2 permits the formula to be modified to -

Bearing Capacity (tonnes) = $0.4 \times E/(s+2.54)$.

Irrespective of hammer selection the Hiley formula is a simplified analysis and actual bearing capacity achieved will be significantly affected by pile type, length, mass and stiffness, in addition to prevailing ground conditions. The Hiley formula was originally devised to estimate pile bearing capacity based on actual site measurements.

The Dawson Hydraulic Impact Hammer has a visible stroke marker on the side of the hammer. This marker can be calibrated to indicate maximum and minimum hammer energy outputs and any energy figure between those two limits. In addition, it is possible to relate the hammer blow rate at final drive to hammer energy output as set out in the table and on the graph shown below providing hammer performance meets with manufacturers specifications.

Please note that practical refusal is considered to be 10 blows/25mm. Driving in excess of 10 blows/25mm for more than 150mm of pile penetration or any driving in excess of 20 blows/25mm will invalidate the hammer warranty.

HPH1200

Blow Rate bpm	Impact Energy			Bearing Capacity at Final Set (blows/25 mm) - tonnes											
	kgm	kNm	ft lb	2	4	6	8	10	12	14	16	18	20		
120	640	6.2	4629	17	29	38	45	50	55	59	62	65	67		
115	710	6.9	5135	19	32	42	50	56	61	65	69	72	75		
110	780	7.6	5641	20	35	46	55	61	67	72	76	79	82		
105	850	8.3	6148	22	38	50	59	67	73	78	82	86	89		
100	930	9.1	6726	24	42	55	65	73	80	85	90	94	98		
95	1000	9.8	7233	26	45	59	70	79	86	92	97	101	105		
90	1070	10.4	7739	28	48	63	75	84	92	98	104	108	112		
85	1140	11.1	8245	30	51	67	80	90	98	105	110	115	120		
80	1210	11.8	8751	32	54	71	85	95	104	111	117	122	127		

HPH1800

Blow Rate bpm	Impact Energy			Bearing Capacity at Final Set (blows/25 mm) - tonnes											
	kgm	kNm	ft lb	2	4	6	8	10	12	14	16	18	20		
120	1005	9.8	7269	26	45	59	70	79	86	92	97	102	106		
115	1119	10.9	8093	29	50	66	78	88	96	103	108	113	117		
110	1233	12.0	8918	32	55	73	86	97	106	113	119	125	129		
105	1347	13.2	9742	35	61	80	94	106	116	124	131	136	141		
100	1458	14.2	10545	38	66	86	102	115	125	134	141	148	153		
95	1567	15.3	11334	41	71	93	110	123	135	144	152	159	165		
90	1680	16.4	12151	44	76	99	118	132	144	154	163	170	176		
85	1797	17.6	12997	47	81	106	126	141	154	165	174	182	189		
80	1910	18.7	13815	51	87	114	135	152	165	177	186	194	202		

HPH2400

Blow Rate bpm	Impact Energy			Bearing Capacity at Final Set (blows/25 mm) - tonnes										
	kgm	kNm	ft lb	2	4	6	8	10	12	14	16	18	20	
120	998	9.7	7218	26	45	59	70	79	86	92	97	101	105	
115	1166	11.4	8433	31	52	69	82	92	100	107	113	118	122	
110	1333	13.0	9641	35	60	79	93	105	115	122	129	135	140	
105	1496	14.6	10820	39	67	88	105	118	129	137	145	151	157	
100	1668	16.3	12064	44	75	99	117	131	143	153	162	169	175	
95	1832	17.9	13250	48	82	108	128	144	157	168	178	185	192	
90	1996	19.5	14437	52	90	118	140	157	171	183	193	202	210	
85	2167	21.2	15673	57	98	128	152	171	186	199	210	219	228	
80	2335	22.8	16889	61	105	138	163	184	201	215	226	236	245	
78	2402	23.5	17373	63	108	142	168	189	206	221	233	243	252	

HPH2500

Blow Rate bpm	Impact Energy			Bearing Capacity at Final Set (blows/25 mm) - tonnes										
	kgm	kNm	ft lb	2	4	6	8	10	12	14	16	18	20	
120	1,045	10	7,558	27	47	62	73	82	90	96	101	106	110	
115	1,238	12	8,954	32	56	73	87	97	106	114	120	125	130	
110	1,431	14	10,350	38	64	85	100	113	123	131	139	145	150	
105	1,622	16	11,732	43	73	96	114	128	139	149	157	164	170	
100	1,817	18	13,142	48	82	107	127	143	156	167	176	184	191	
95	2,013	20	14,560	53	91	119	141	159	173	185	195	204	211	
90	2,200	22	15,913	58	99	130	154	173	189	202	213	223	231	
85	2,396	24	17,330	63	108	141	168	189	206	220	232	243	252	
80	2,579	25	18,654	68	116	152	181	203	222	237	250	261	271	

HPH5000

Blow Rate bpm	Impact Energy			Bearing Capacity at Final Set (blows/25 mm)- tonnes									
	kgm	kNm	ft lb	2	4	6	8	10	12	14	16	18	20
120	2,049	20	14,820	54	92	121	143	161	176	188	199	207	215
115	2,427	24	17,555	64	109	143	170	191	208	223	235	246	255
110	2,806	28	20,296	74	126	166	196	221	241	258	272	284	295
105	3,181	31	23,008	83	143	188	223	250	273	292	308	322	334
100	3,562	35	25,764	93	160	210	249	280	306	327	345	361	374
95	3,947	39	28,549	104	178	233	276	311	339	363	383	400	414
90	4,314	42	31,203	113	194	255	302	340	371	396	418	437	453
85	4,697	46	33,973	123	211	277	329	370	403	431	455	476	493
80	5,076	50	36,715	133	228	300	355	400	436	466	492	514	533

HPH6500

Blow Rate bpm	Impact Energy			Bearing Capacity at Final Set (blows/25 mm)- tonnes									
	kgm	kNm	ft lb	2	4	6	8	10	12	14	16	18	20
120	2500	24.5	18082	65	113	148	175	197	215	230	243	254	264
116	2900	28.4	20975	76	131	172	204	229	250	267	282	295	305
112	3300	32.3	23868	87	149	195	232	261	285	305	321	335	347
108	3700	36.2	26762	97	167	219	260	293	319	341	360	375	390
104	4100	40.2	29655	108	185	243	288	324	354	378	399	416	432
100	4500	44.1	32548	118	204	266	316	355	388	415	437	457	475
96	4900	48	35441	129	221	291	345	387	423	452	476	498	516
92	5300	51.9	38334	139	239	314	372	418	455	487	515	537	557
88	5700	55.8	41228	150	257	337	399	449	490	525	553	578	599
84	6100	59.8	44121	160	275	361	427	481	525	561	592	618	642
80	6500	63.7	47014	171	293	385	455	513	559	598	631	659	684

HPH10000

Blow Rate bpm	Impact Energy			Bearing Capacity at Final Set (blows/25 mm) - tonnes															
	kgm	kNm	ft lb	2	4	6	8	10	12	14	16	18	20	22	24	25			
120	4078	40	29502	108	186	243	289	325	354	379	400	417	433	446	458	464			
115	4894	48	35402	128	220	288	342	384	419	448	473	494	512	528	543	549			
110	5608	55	40565	148	254	333	395	444	485	518	547	571	592	611	627	635			
105	6424	63	46466	168	288	378	448	503	549	587	620	647	671	692	711	719			
100	7138	70	51629	188	322	423	501	564	615	658	694	725	751	775	796	805			
95	7953	78	57529	208	357	468	555	624	681	728	769	803	833	859	882	892			
90	8667	85	62692	228	392	514	609	685	748	799	843	881	914	942	967	979			
85	9483	93	68593	249	426	559	663	746	814	870	918	959	995	1026	1053	1066			
80	10197	100	73756	269	460	604	716	806	879	940	992	1036	1074	1108	1138	1151			

HPH15000

Blow Rate bpm	Impact Energy			Bearing Capacity at Final Set (blows/25 mm) - tonnes															
	kgm	kNm	ft lb	2	4	6	8	10	12	14	16	18	20						
120	6220	61	44991	162	278	365	433	487	531	568	599	626	649						
115	7341	72	53104	192	329	432	512	577	629	673	710	741	769						
110	8463	83	61217	222	381	500	592	666	727	778	820	857	889						
105	9585	94	69330	252	432	566	671	755	824	881	929	971	1007						
100	10707	105	77443	282	483	634	752	846	922	986	1041	1087	1127						
95	11930	117	86294	312	535	702	833	937	1022	1093	1153	1204	1249						
90	13052	128	94407	343	587	771	914	1028	1121	1199	1265	1322	1371						
85	14174	139	102520	373	639	839	995	1119	1221	1305	1377	1438	1492						
80	15397	151	111371	403	691	907	1075	1209	1319	1410	1488	1554	1612						



Driving in excess of 10 blows per inch (25 mm) is considered practical refusal. Driving in excess of 10 blows per inch (25 mm) for more than 6 inches (150 mm) or driving in excess of 20 blows per inch (25 mm) at all is considered improper use and will void the hammer warranty.

hydraulic hammer powerpacks



This Dawson power pack is fully self contained, including all oil and fuel reservoirs, prime mover and hydraulic circuitry. The power pack is designed to be directly connected to the working element of the system; however it can be connected through further hydraulic valves to perform alternative operations with guidance from the manufacturer.

The power pack is designed to produce a fixed oil flow rate at a pre-set pressure to supply hydraulic piling hammers in various environments from hot summers in Kuwait to cold winters in Ontario.

The diesel engine runs at a fixed RPM and is calibrated against the pump flow rate. A built in offline filtration system is used to condition the hydraulic oil to 2 microns and remove an amount of water contamination.

technical specifications

	Power Packs		
	HPH2500	HPH5000	HPH10000
Pack Type	Dawson	Dawson	Dawson
Engine	JCB Diesel Tier 4F/Stage 5	Volvo Diesel	Volvo Diesel
Max. power	81 kW	160 kW	160 kW
Max. operating pressure	280 bar	270 bar	270 bar
Max. oil flow	150 l/min	270 l/min	270 l/min
Diesel oil	340 l	490 l	490 l
Hydraulic oil	400 l	540 l	540 l
Weight (estimate)	3200 kg	4350 kg	4350 kg
Dimensions (LxWxH)	3000 x 1400 x 1450 mm	3370 x 1550 x 1980 mm	3370 x 1550 x 1980 mm

additional equipment

A full range of accessories are available from Dawson to help solve numerous pile driving challenges. If it is not contained within this brochure please do not hesitate to contact us to discuss your requirements - **there is a good chance we may have met the challenge successfully before.**

Hydraulic Interface Control Module

Integrates the HPH Hydraulic Hammer range with a vast array of hydraulic power sources e.g. crawler crane, power packs etc, with minimum installation effort.
Maximum flow input 400 L/min (107 gpm US)
Maximum pressure input 350 bar (5,075 psi)
Unit requires a 24V/5A power supply.
Dimensions - 650x450x470 (LxHxW)
Weight - 126 kg



Underwater Kit

All Dawson hammers can be set up to operate under water in depths of excess of 100 m.

electrical switching

Dawson Construction Plant has developed an industry leading, robust and simple, electronic control system that **constantly** monitors the drop weight position. This constant monitoring allows the switching timing on the main hydraulic spool to be trended to continually optimise hammer performance throughout varying piling conditions, such as:

- 1 – Hard driving with pile recoiling
- 2 – Soft driving with a running pile
- 3 – Cold hydraulic oil on start up
- 4 – Raking piles



With constant drop weight position monitoring, the velocity of the drop weight is also known, therefore energy output can be accurately measured and is displayed to the operator on the powerpack interface screen. This information can be recorded direct to a laptop via a Dawson software interface, and can be saved in standard spreadsheet formats, giving a blow by blow account of every pile driven and a day to day productivity record.

INTERFACE SCREEN MOUNTED ON POWER PACK



TYPICAL SCREEN SHOTS

The main screen displays bar graphs showing hammer stroke & hydraulic oil temperature.

An Off Pile indicator confirms when the hammer is securely seated on the pile, and allows piling to commence.

There are numerical read outs showing blows per minute, energy per blow and total blows. The lower reading shows blows in LAP cycle. (Measuring blows per increment). The units can be changed from imperial to metric.

The history screen provides information on the total number of start ups / total hours / total blows and total energy through out the life of the hammer.