

# BSP HYDRAULIC HAMMER 357

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SIMPLY WORLDS AHEAD





# BSP HYDRAULIC HAMMER 357

BSP HYDRAULIC HAMMERS have always set new civil engineering standards for pile installation, and the HH357 Mk 5 series with a standard actuator is offered with a range of ram weights of 5, 7 or 9 tonne. To meet the trend towards larger and more heavily loaded piles, the new HH357 HD Mk 5 series of hammers is now available with a heavy duty cage and actuator assembly, and a range of ram weights of 5, 7, 9 or 11 tonne.

**THE NUCLEUS OF EVERY BSP HYDRAULIC HAMMER:** Being the result of years of development and experience gained in the design and manufacture of piling hammers, the BSP Hydraulic Actuator system is renowned for its high degree of efficiency and controlability, and provides the



nucleus of every BSP Hydraulic Hammer. This high efficiency is achieved by the actuator design which allows the hammer drop weight to fall under effect of gravity with virtually no resistance from the hydraulic circuit. The simplicity of design of the actuator enhances the operating efficiency, having few moving parts, and with all hydraulic components closely coupled to the lifting cylinder. These features are standard in all BSP Hydraulic Hammers, providing the contractor with a high output performance together with above average fuel efficiency from the power source.

FAR LEFT: HH5 leader operated, driving 350x350 P.C. piles, Singapore.



CENTRE: Crane suspended HH7 driving steel tubular piles 813 dia, UK.

ABOVE: HH9 driving 50inx50inx35m P.C. piles from a floating pontoon, USA.

BELOW: HH7 with sound enclosure driving Larssen 6 in pairs, crane suspended mode, UK.

## FEATURES OF THE BSP HH357 Mk 5 SERIES

**RELIABILITY:** The BSP range of Hydraulic Hammers is designed to operate in the most demanding and difficult conditions throughout the world with proven reliability.

**CONTROLABILITY:** An infinitely variable stroke control and blow rate allows precise adjustment of energy output, minimising pile damage, avoiding problems of pile runaway, optimising performance efficiency and thereby maximising production output.

**VERSATILITY:** The BSP HH357 Mk 5 series Hydraulic Hammers is suitable for operation from piling leaders or crane suspension in either land or marine environments. They are particularly effective for driving all types of piles including bearing piles, vertically or at a rake.

**ECONOMY OF OPERATION:** To ensure lower running costs the patented hydraulic actuator provides an efficient free fall, high blow rate system, from a comparatively small hydraulic power source.

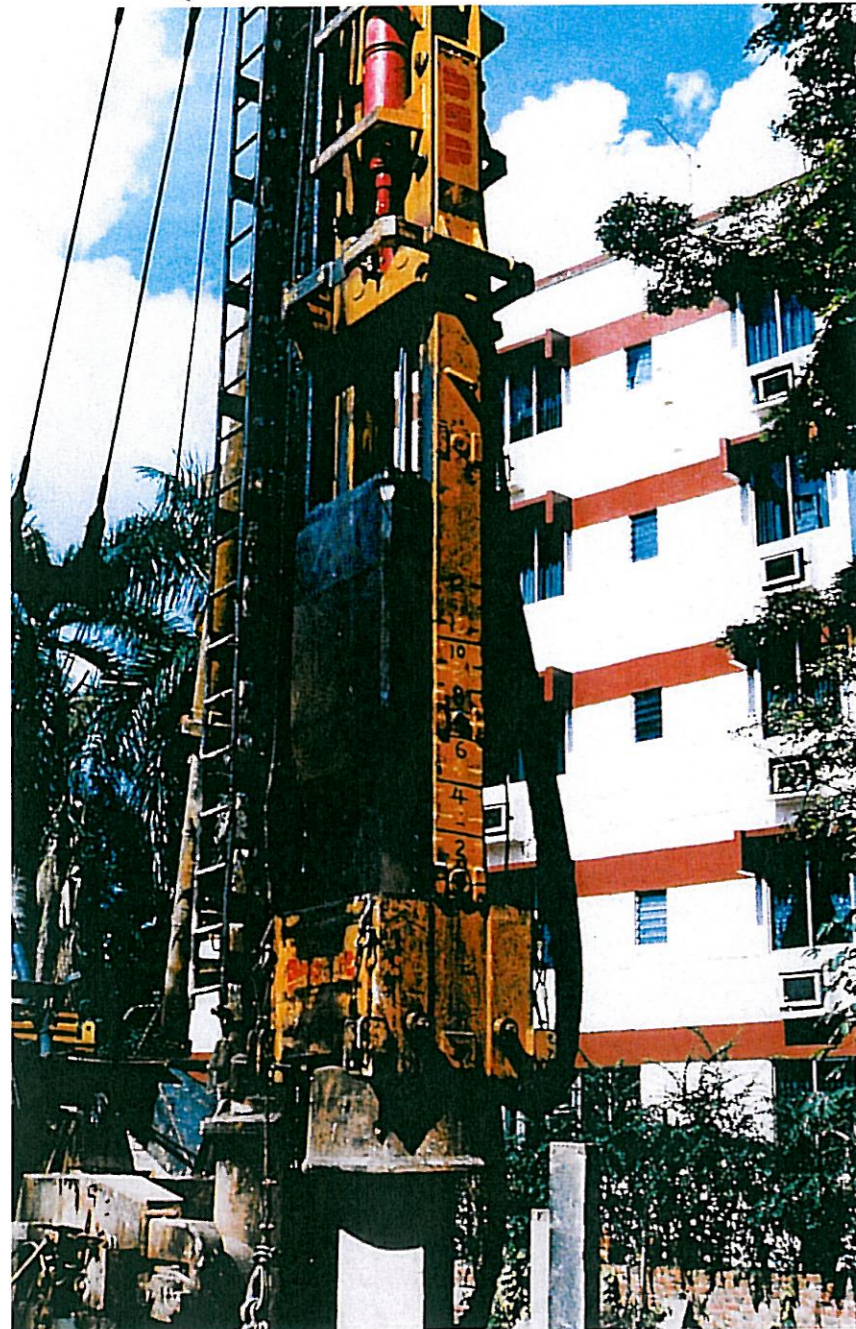
**PERFORMANCE MONITORED:** With the increasing demand from piling contractors for the operation of quality assurance systems, the optional BSP Energy Monitor is a worthwhile addition. It produces an instant and direct read-out of performance, and this information may be stored for eventual down loading to a PC.

**POWER SOURCE:** BSP offers a Hydropack power source providing hydraulic flow and pressure compatible to the hammer output. Alternatively, if an external power source is to be used, BSP can advise on suitability and the

capacity requirements.

**ENVIRONMENTAL RESPONSIBILITY:** As the driving force of BSP hammers is hydraulic, there are no hammer exhaust emissions, and by optimising the impact velocity a reduction in noise output can be obtained.

**QUALITY ASSURED:** BSP has thorough and exacting standards and all products are manufactured to the highest quality and specification. In 1988 BS5750 was obtained for quality assurance, and now BSP conforms to the latest internationally recognised ISO standard.





## CONTROL SYSTEMS



### REMOTE CONTROL BOX

The operator controls are housed in a security box which is sealed against the ingress of moisture. The comprehensive control functions include:

- Engine run and stop switch
- Electrical supply on/off switch
- Pump flow selection dial
- Hammer stroke and dwell adjustment dials
- Automatic/manual operation selector switch plus activate button
- Digital blow count recorder
- Stroke indicator - LED display
- Warning lights for incorrect hammer to pile location - LED display
- Operation by timer in event of loss of electrical signal from hammer

### ENERGY MONITOR

Essential for piling contractors requiring quality control.

The BSP energy monitor interfaces with the latest design of control box to provide a direct reading on an LED display of the energy delivered to the drive cap system. The monitor stores this information together with penetration increments keyed in by the operator. The distance between each penetration entry can be varied to suit the engineer's requirement.

The monitor can be connected to a laptop computer on site or to a PC back at the contractors/engineers office and stored information downloaded into the format shown, providing a complete record of the pile driven.

The BSP monitor kit fits into a strong carrying case and comprises the monitor, main adaptor, connecting leads and instruction manual.

ABOVE: BSP hydraulic hammer remote control box with energy monitor transferring piling data to a PC.

### LOGGED DATA EXAMPLE

SITE DATA				PILE INFORMATION				
CONTRACT	BSP DEMO			PILE REFERENCE	TEST			
CLIENT	FOUNDATIONS			PILE BLOWS	790			
CONTRACTOR	BSP			PILE DEPTH	16.0m			
CONTRACT REFERENCE	DEMONSTRATION			LAST SET	25mm/BLOW			
DRAWING REFERENCE	123			AVERAGE ENERGY	5.35 T.m			
ENGINEER	A COOPER			PILE TIME	20 min			
HAMMER USED	HH5			MARK DISTANCE	0.25m			
DATE	TIME	DEPTH	BLOWS	BL/INT	AV. ENGY	BPM	SET	CODE
25/08/96	14.12	11.0	26	26	5.25	38	38	M
25/08/96	14.12	12.0	56	30	5.20	37	33	M
25/08/96	14.13	13.0	107	51	5.55	39	20	M
25/08/96	14.13	14.0	190	83	5.40	40	12	M
25/08/96	14.14	15.0	388	198	5.40	40	5	M
25/08/96	14.15	16.0	790	402	5.35	39	2.5	S

## POWER SOURCE

DIESEL POWERED 'OPEN CIRCUIT' HYDRAULIC HYDROPACK with a turbocharged diesel engine, and bent axis pump, is dedicated to the operation of the range of BSP 357 Mk 5 Hammers.

The engine management system on the control panel, allows the hammer to be operated in manual mode.

Filtration is provided by a tank mounted filter with sensor providing a warning in the event of blockage.

Engine cooling is provided by a radiator fan, and hydraulic oil temperature controlled by an independent air blast cooler.

The base and frame are of welded construction. Lockable doors, lined with sound dampening material, give security and service access. The control panel is positioned at one end of the pack.

### HYDROPACK - HH357 Mk 5 SERIES

ENGINE TYPE	PERKINS 1006T	HYDRAULIC OIL TANK CAPACITY	300 litre
ENGINE POWER	102 kW @ 2000 rev/min	DIMENSIONS:	
		LENGTH	2500 mm
OPERATING PRESSURE	300 bar	WIDTH	1100 mm
MAXIMUM FLOW	195 l/min	TRANSPORT HEIGHT	2140 mm
FUEL TANK CAPACITY	230 litre	WEIGHT DRY	2250 kg
		WEIGHT FULL	2750 kg

BELOW: The Hydropack hydraulic power source.





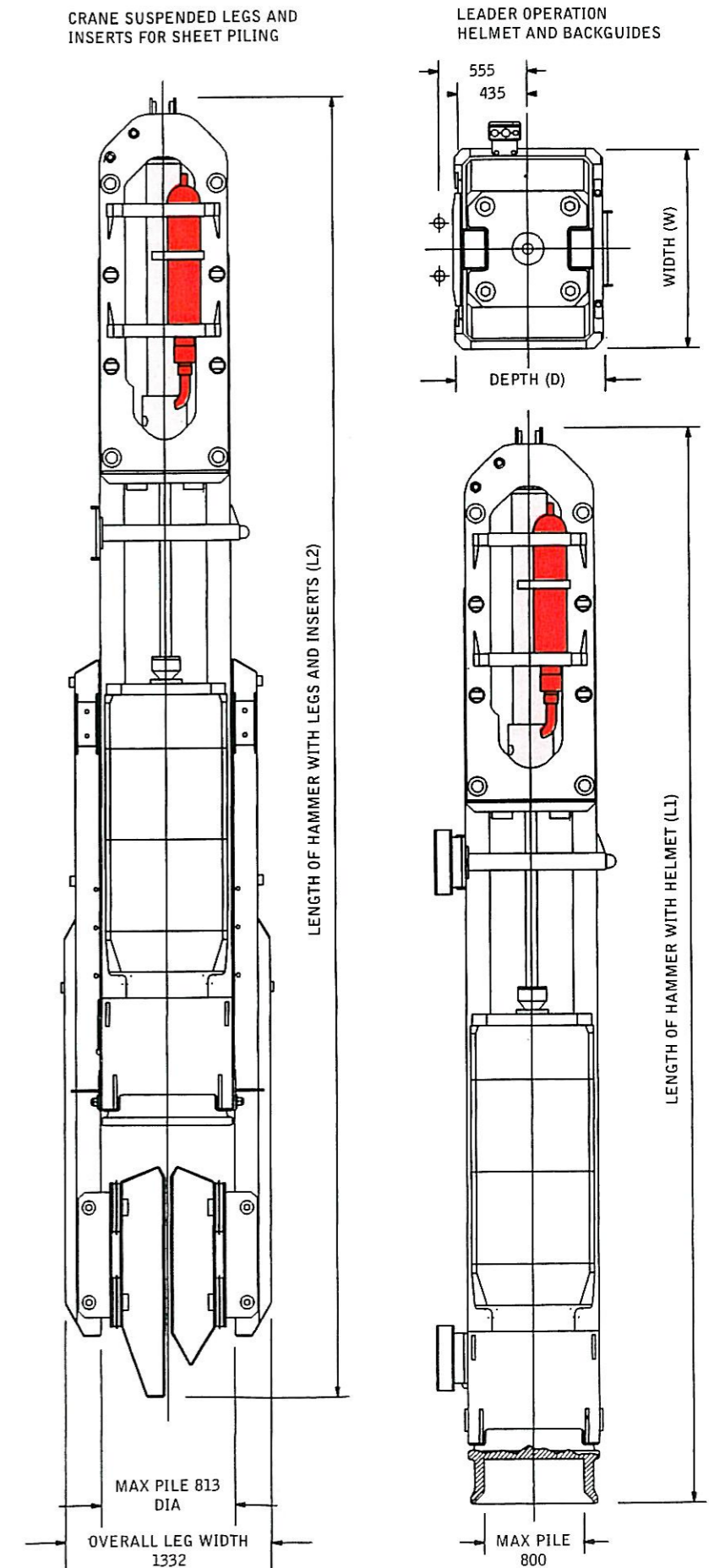
## TECHNICAL DATA

### SPECIFICATION: BSP HH357 Mk 5 SERIES HAMMERS

		HH5S	HH7S	HH9S	HH5HD	HH7HD	HH9HD	HH11HD
RAM WEIGHT	kg	5000	7000	9000	5000	7000	9000	11000
RAM STROKE	mm	variable 200-1200			variable 200-1200			
<b>PERFORMANCE AT FULL STROKE</b>								
MAXIMUM POTENTIAL ENERGY PER BLOW	kNm	59	83	106	59	83	106	130
BLOW RATE WITH BSP HYDROPACK POWER SOURCE	blow/min	42	40	32	33	34	33	30
HYDRAULIC OIL PRESSURE AT HAMMER	bar	210	240	265	150	200	250	300
HYDRAULIC OIL FLOW AT HAMMER	l/min	180	190	190	195	195	195	190
BLOW RATE - OPTIMUM	blow/min	42	40	32	46	41	38	30
<b>PERFORMANCE AT HALF STROKE</b>								
POTENTIAL ENERGY PER BLOW AT HALF STROKE	kNm	30	42	53	30	42	53	65
BLOW RATE AT HALF STROKE WITH HYDROPACK POWER SOURCE	blow/min	60	52	44	67	64	54	44
<b>WEIGHTS</b>								
WEIGHT OF BASIC HAMMER (NO DRIVE CAP)	kg	7250	9250	11250	7350	9350	11350	13350
WEIGHT OF HELMET 600 I/DIA c/w DOLLY AND DRIVE PLATE	kg	1100	1100	1100	1100	1100	1100	1100
WEIGHT OF HELMET 800 I/DIA c/w DOLLY AND DRIVE PLATE	kg	1300	1300	1300	1300	1300	1300	1300
WEIGHT OF NARROW FLAT DRIVING CAP c/w DOLLY AND DRIVE PLATE	kg	830	830	830	830	830	830	830
*WEIGHT OF HAMMER WITH HELMET 600 O/D AND EQUIPPED FOR LEADER OPERATION (EXCLUDING HOSES)	kg	8570	10570	12570	8670	10670	12670	14670
*WEIGHT OF HAMMER WITH FLAT DRIVING CAP AND EQUIPPED FOR CRANE SUSPENDED OPERATION (EXCLUDING HOSES)	kg	9100	11100	13100	9200	11200	13200	19150
WEIGHT OF HYDRAULIC HOSES (FULL OF OIL)	kg/m	10	10	10	10	10	10	10
<b>DIMENSIONS</b>								
LENGTH BASIC HAMMER (EXCLUDING DRIVE CAP)	mm	5747	6317	6317	5747	6317	6317	6887
WIDTH (W)	mm	860	860	1250	860	860	1250	1250
DEPTH (D)	mm	1000	1000	1000	1000	1000	1000	1000
*LENGTH HAMMER WITH HELMET FOR LEADER OPERATION (L1)	mm	6137	6707	6707	6137	6707	6707	7277
*LENGTH HAMMER WITH LEGS AND INSERTS (L2)	mm	7837	8407	8407	7837	8407	8407	8977
*LENGTH OF PILE ENGAGEMENT WITH LEGS AND INSERTS	mm	1700	1700	1700	1700	1700	1700	1700

NOTE : \*Figure may vary depending on piling application

## DIMENSIONS: HH357 Mk 5



**OTHER PRODUCTS  
MANUFACTURED  
BY BSP INCLUDE:**

BSP hydraulic hammers  
for the installation of  
the following pile types:

pre-stressed piles

steel sheet piles

steel tubular bearing piles

steel H-piles

steel combination piles

pre-cast RC piles

cast-in-situ piles

BSP drilling equipment  
is suitable for:

large diameter bored piling

CFA

auger displacement

reverse circulation

direct circulation

IN THE INTEREST OF QUALITY AND  
PERFORMANCE, WE RESERVE THE  
RIGHT TO AMEND SPECIFICATIONS AT  
ANY TIME.

COVER: HH11 leader operated, driving  
600mm dia steel tubular piles, Taiwan.

BACK COVER: HH9 in suspended bell,  
working on a jetty project, Australia.



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