

**PRODUCT**



**SUMMARY**

**DAWSON**



Hydraulic Impact Hammers



Quiet, Vibration-less Pile Installation and Removal



Excavator Mounted Vibrators



Pile Capping Systems



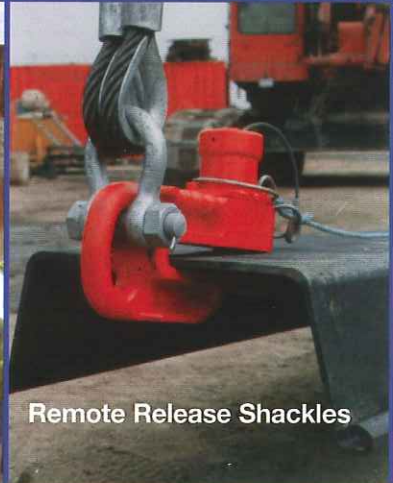
Auger Cleaners



Sheet Pile Threaders



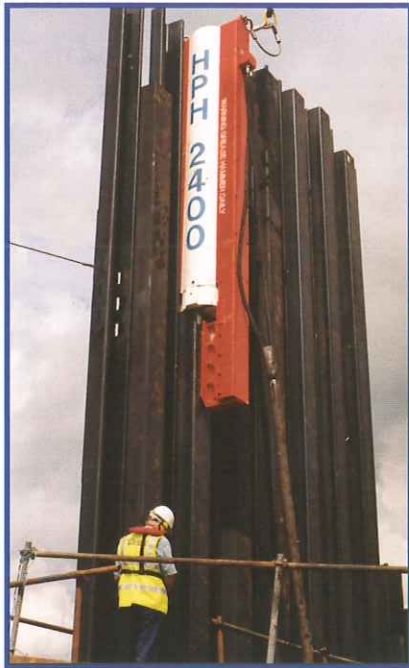
Quiet, Vibration-less Pile Extraction



Remote Release Shackles

***Innovative Piling Equipment***

## Hydraulic Piling Hammers



### Principal Advantages

- **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 outperforms 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
- **All hydraulic operation** – omitting electrical components results in a simple, robust hammer design
- **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

Specification	Units	Hammer Type							
		HPH1200	HPH1800	HPH2400	HPH4500	HPH6500	HPH10K	HPH12K	HPH15K
<b>Hammer</b>									
<b>Ram Weight</b>	kg	1,040	1,500	1,900	3,500	4,650	8,000	10,000	12,000
	lbs	2,300	3,300	4,189	7,840	10,250	17,650	22,050	26,450
<b>Impact Velocity</b>	m/s	4.76	4.99	4.98	5.05	5.25	5.00	5.00	5.00
	ft/s	15.60	16.40	16.30	16.60	17.20	16.40	16.40	16.40
<b>Maximum Pile Energy</b>	kg.m	1,200	1,900	2,400	4,500	6,500	10,000	12,000	15,000
	ft.lbs	8,680	13,750	17,360	32,560	47,000	73,750	88,500	110,600
<b>Maximum Momentum</b>	kg.m/s	4,950	7,485	9,462	17,675	24,413	40,000	50,000	60,000
	lbs.ft/s	35,880	54,120	68,281	130,144	176,300	289,460	361,620	433,780
<b>Blow Rate</b>	bpm	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
<b>Length - Lead Mounted</b>	mm (ins)	3,800 (150)	3,930 (155)	4,430 (175)	4,650 (183)	5,350 (210)	6,500 (256)	6,500 (256)	6,500 (256)
<b>Length - Free Hanging with Sheet Pile Leg Guides</b>	mm	4,670	5,050	5,300	5,500	6,458			
	ins	184	199	208	216	137	-	-	-
<b>Length - Free Hanging with Guide Sleeve</b>	mm				5,597	6,310	7,500	7,500	7,500
	ins				220	249	295	295	295
<b>Weight - Lead Mounted</b>	kg	3,000	4,250	6,000	8,500	10,400	15,000	17,000	19,000
	lbs	6,600	9,350	13,227	19,000	23,300	33,000	(37,400)	(41,800)
<b>Weight - Free Hanging with Sheet Pile Leg Guides</b>	kg	3,000	4,250	6,000	10,750	14,600			
	lbs	6,600	9,350	13,227	23,700	32,700	-	-	-
<b>Weight - Free Hanging with Guide Sleeve</b>	kg				10,000	13,500	23,000	25,000	27,000
	lbs				22,040	29,750	50,700	55,100	59,500
<b>Weight - Ram removed for transport</b>	kg						11,000	13,000	15,000
	lbs						24,250	28,660	33,100
<b>Power Pack</b>									
<b>Diesel Engine Power</b>	kW	40	50	68	129	150	400	400	400
	hp	54	67	90	173	200	536	536	536
<b>Hydraulic System Pressure</b>	bar	230	230	230	255	260	180	220	260
	psi	3,300	3,300	3,300	3,700	3,800	2,610	3,190	3,770
<b>Oil Flow Rate</b>	l/min	75	105	150	230	260	750	750	750
	gpm	20	28	40	61	69	200	200	200

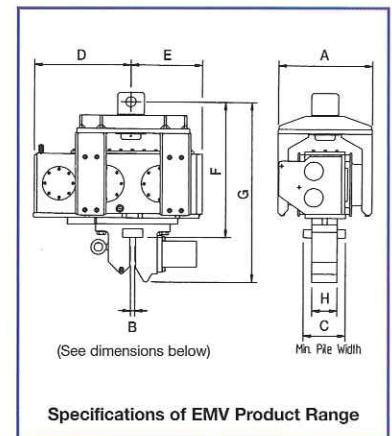
## Excavator Mounted Vibrators



Dawson excavator mounted vibrators have been designed specifically to work in place of an excavator bucket to drive and extract piles. The pile can be lifted to vertical using the built-in lifting chain where it is then gripped tightly in a powerful hydraulic jaw. Once secured, the pile is then vibrated with high frequency vibrations so as to 'fluidise' the soil resisting the pile. Down-crowd force applied by the excavator boom, coupled with the self-weight of the pile and the vibrator, provides sufficient force to push the pile into the ground. Naturally, the process works in reverse for pile extraction. This equipment offers a highly productive and cost effective piling rig based around a standard, readily available excavator!

### Principal Advantages

- Compact, robust and reliable – no electrics!
- Simple and fast attachment to excavator
- Minimal height to maximise pile length
- Slim design to drive single sheet piles
- High power to weight ratio
- Universal joint suspension for easy alignment of piles
- Extremely low vibration transmitted to the excavator
- Environmentally friendly – low noise/localised directional vibration
- Automatic hydraulic clamp operation
- Flexibility in application
- Flow regulator prevents excessive oil supply to vibrator



Characteristic	Units	EMV70	EMV300	EMV300A	EMV400	EMV400D	EMV525
Static Moment	in.lbs	60	400	400	545	545	674
	kgm	0.7	4.6	4.6	6.2	6.2	7.6
Frequency	vpm	3,000	2,400	2,400	2,460	2,460	2,500
Centrifugal Force	lbs	15,730	67,420	67,420	91,340	91,340	119,880
	kN	70	300	300	400	400	525
Amplitude – peak to peak	ins	0.134	0.58	0.58	0.55	0.5	0.51
	mm	3.4	14.7	14.7	14	12	13
Minimum Required Flow Rate	gpm	8	35	35	52	52	68
	l/min	30	130	130	195	195	256
Maximum Allowable Flow Rate	gpm	32	67	67	94	94	107
	l/min	120	250	250	350	350	400
Minimum Hydraulic Pressure	psi	3,480	3,480	3,480	3,480	3,480	3,625
	bar	240	240	240	240	240	280
Maximum Hydraulic Pressure	psi	5,076	5,076	5,076	5,076	5,076	5,076
	bar	350	350	350	350	350	350
Minimum Hydraulic Motor Power	hp	16	70	70	107	107	160
	kW	12	52	52	80	80	120
Dynamic Mass	lbs	900	1,380	1,380	2,038	2,240	2,576
	kg	410	625	625	910	1,000	1,150
Total Mass	lbs	1,150	1,890	1,890	2,632	2,834	3,360
	kg	520	860	860	1,175	1,265	1,500
Maximum Pile Mass	lbs	1,760	1,760	1,760	2,240	2,240	3,136
	kg	800	800	800	1,000	1,000	1,400
Maximum Push/Pull Loading	lbs	6,171	17,600	33,600	33,600	33,600	33,600
	kg	2,800	8000	15,000	15,000	15,000	15,000
Typical Excavator Weight	Ton	5.5 to 17	13 to 39	13 to 39	27 to 50	27 to 50	33 to 60
	Tonne	5 to 15	12 to 35	12 to 35	25 to 45	25 to 45	30 to 55
Dimensions mm (inch)	A	360 (14.2)	560 (22)	615 (24)	615 (24)	615 (24)	750 (29.5)
	B	25 (1)	25 (1)	25 (1)	25 (1)	32 (1.25)	40 (1.5)
	C	250 (10)	250 (10)	250 (10)	220 (8.7)	230 (9)	230 (9)
	D	455 (18)	582 (23)	582 (23)	640 (25)	640 (25)	850 (33.5)
	E	340 (13.4)	429 (17)	429 (17)	510 (20)	510 (20)	560 (22)
	F	672 (26.5)	816 (32)	927 (36.5)	970 (38)	945 (37)	985 (39)
	G	942 (37)	1085 (43)	1200 (47.25)	1250 (49)	1250 (49)	1400 (55)
	H	150 (6)	150 (6)	150 (6)	150 (6)	160 (6.4)	195 (7.7)

## Quiet, Vibration-less Piling Equipment

### Principal Advantages

- Quiet, vibration-less pile installation and/or removal
- Powerful installation forces up to 200 tonnes and extraction forces up to 1,000 tonnes
- Fast installation or extraction rates deliver high productivity and economy
- Readily configured to suit Z, U & H-pile profiles
- No reaction frame required at the start of pile installation – unlike conventional pile presses
- Corner piles easily installed without reaction frame
- System permits "boundary piling" close to existing structures to maximise development footprint
- Leader guided installation reduces interlock friction and produces high installation quality
- Truly recyclable foundation solutions that return the site to original 'greenfield' condition
- Push-Pull system will install sheet piles as retaining walls or as foundation 'box' piles
- Pile extractors deliver considerably more force to the pile than traditional extraction equipment in a totally safe and controlled manner – does not require crane line pull during operation
- Offers unrivalled pile extraction method in limited headroom situations

### Push-Pull Piling Systems – Pile installation and removal



2 Cylinder Push-Pull on Liebherr LRB 155 piling rig installing U & Z-piles - Germany



4 Cylinder Push-Pull on Liebherr LRB 255 piling rig installing U-piles - UK



4 Cylinder Push-Pull Foundation Box Pile on Liebherr LRB255 - UK

### Pile Extractors – Pile removal only



X1000t Universal Pile Extractor pulling Arcelor AZ36 sheet piles – Easington, England



X400t Universal Pile Extractor pulling Arcelor PU25 sheet piles – Heathrow Airport Terminal 5, England

## Sheet Pile Guide Frames

A complete temporary guide frame system to hold and support a panel of steel sheet piles whilst they are installed. Guide walings are incorporated at two levels to provide precise guidance and support.



Upper walings are designed as personnel walkways in accordance with current regulations. End trestles provide safe personnel access and full structural support. The system readily transports as one load and can be quickly assembled on site using proprietary connectors. Working panel lengths of either 12 or 24m (40' or 80') can be accommodated with upper walings at either 4 or 6m (13' or 20') high.



Multiple sets of Guide Frames (12m long x 6m high) were used on the Jumeirah Palm Island project in Dubai, UAE. 30m long heavy duty steel sheet piles were driven using large ICE 815 vibrators during the construction of the vehicle access tunnel between the top of the 'Palm Tree' and the circular breakwater.

## Sheet Pile Capping System



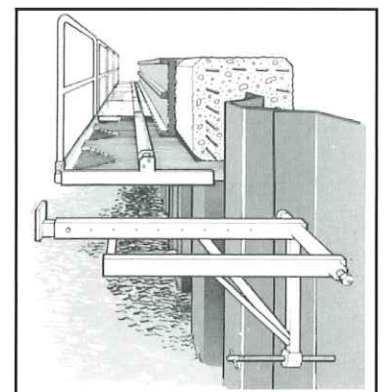
Experienced piling personnel know that forming a capping beam on the top of steel sheet piling is a difficult and time consuming task, often swallowing-up project profits when the job is nearly completed! Our Pile Capping System offers a quick, safe method of forming and supporting the soffit to the concrete cap.

There are two basic elements of the system:

**Redeb Support Bracket** - the quick-fix load-supporting element (above left);

**Soffit Shutter Panel** - the soffit forming element (above middle). This panel houses small steel rods that can be pushed forward to take up the profile of any sheet pile. There is no plywood to cut or waste - concrete is poured directly onto the steel rods!

Add a side form and cross ties and the cap is constructed 2-3 times faster than by traditional methods. The panel element includes a walkway and handrail in its design so as to ensure safe access for site personnel.



## Pile Points and Splicers

A range of products are available that enhance the performance and productivity of driven piling. Pile Points help to protect the leading edge of the driven pile thus maintaining its chosen mechanical properties. These are available to suit: pipe piles; sheet piles; timber and H-piles. Pile Splicers speed-up the alignment and butt-welding of piles being joined end-to-end. They are available for pipe piles as either drive-on or weld-on items, and for H-piles as weld-on only.



## Auger Cleaners

Spoil from Continuous Flight Augers should be removed at the lowest possible level so as to prevent rig instability and avoid injury to personnel or damage to machinery due to falling debris.



Units are custom built to suit customer's drilling rigs and auger specifications. An Auger Cleaner can be adapted to a variety of different auger diameters and pitches using alternative shells. The 'shell', or barrel, is attached to the underside of the auger cleaner drive.

Auger Cleaners provide a fast, powerful and productive means of cleaning all soil types from a continuous flight auger. This becomes increasingly important as the diameters increase, particularly with heavy soils. Models are available to clean auger diameters from 300 to 2,000mm, depending on rig specification. Please contact Dawson for further technical details.

## Handling Accessories

Dawson offers a comprehensive range of accessories designed to permit productive and safe handling, and final placing, of long structural sections, including driven piling.

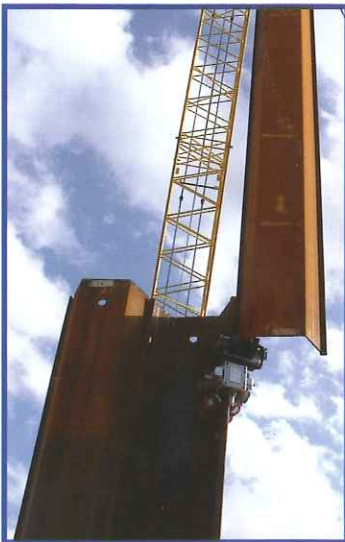
### Euro Ground Release Shackles



### Euro Ratchet Release Shackles

Dawson remote release shackles come in two distinctly different designs. The "Ground" release unit is a highly productive 'pull-release' design. The "Ratchet" release unit offers a super-safe 'screw-release' mechanism. Both include a clear visual indicator to confirm correct engagement with the lifting point. Shackles are offered with a range of Safe Working Loads (3.5 – 40.0 tonnes) and accommodate a number of lifting hole positions. Special shackles can be made to order e.g. wider throat.

### Sheet Pile Threaders



Sheet pile threaders offer a complete 'feet on the ground' approach to steel sheet piling when used in conjunction with our remote release shackles. Improve productivity and working safety!

### Pile Extraction Clamps

Finish the extraction of steel piles safely and productively. Once extracted the piles can be laid down precisely where required, avoiding the pitfalls of releasing piles from the jaws of a vibrator.



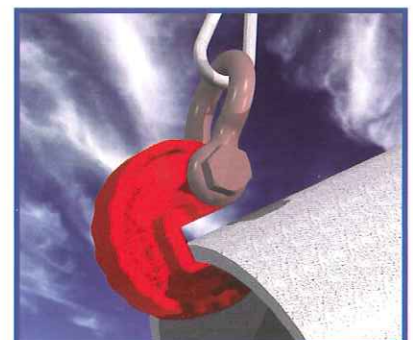
### Ratchet Beam Sling

Safely lift, position and release structural horizontal beams.



### Steel Handling Shoes

Split steel sheet piles from a stack, handle steel pipes, beams or columns using pairs of handling shoes



## Representations

Dawson is proud to represent other leading manufacturers in our industry



The German based ABI Group offers a premium range of piling rigs for all types of piling - driven or drilled. Products from ABI, Delmag or Banut come with state-of-the-art technology as standard, delivering high productivity with great reliability. Rigs can be customised to meet the demands of individual clients.



BAY SHORE SYSTEMS INC.



The LoDrill excavator mounted drilling attachment, manufactured Bay Shore Systems Inc. in the USA, offers significant benefits over traditional equipment, including: low headroom and limited access applications; long reach; rapid mobilisation, and operation on an inclined surface. They fit on standard excavators and offer considerable cost savings when compared to established drilling rigs.

*Please contact Dawson if you require more detailed information on any of the products or services previewed in this publication. Fully detailed individual product brochures are available on request.*



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Dawson reserves the right to discontinue equipment at any time, or change specifications or designs without notice or occurring obligations

