APE EQUIPMENT CATALOG

THE WORLD'S LARGEST PILE DRIVERS

ORION USING A 20-5 HIH TO DRIVE 3" PIPE TERMINAL 5 IN SEATTLE, WA

AMERICAN PILEDRIVING EQUIPMENT

800-248-8498

WWW.AMERICANPILEDRIVING.COM

Contents

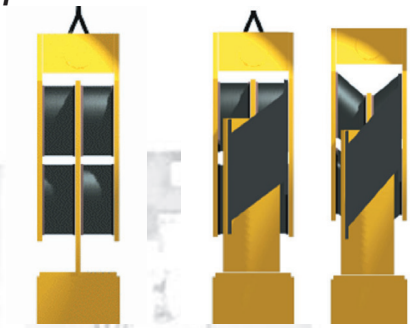
APE: We're on the job

American Piledriving Equipment Inc. has a unique way of doing business in the deep foundation construction industry. We devise, manufacture, load, and ship our own products. We don't rely on distributors; we rent and sell directly to the contractor. We get our equipment to the job site and we set it up. We get our people in the field where they can help, teach and learn with the customers.

From design to production to installation, APE professionals are involved.

APE is committed to providing outstanding products and service, and being on the job site is crucial to upholding this commitment. We learn first hand what problems need to be addressed for a particular job before going to the engineering table to solve them. Since our machining and fabrication facilities are in-house, we have the flexibility to respond to job situations almost instantly. Transforming a good idea into a job site reality is our specialty. APE is the best in the industry when it comes to supporting our customers with innovative technology. This is the key to APE's successful research and development program, making us the industry leader in patents issued worldwide.

How can you reach further AND pull harder with LESS vibration?



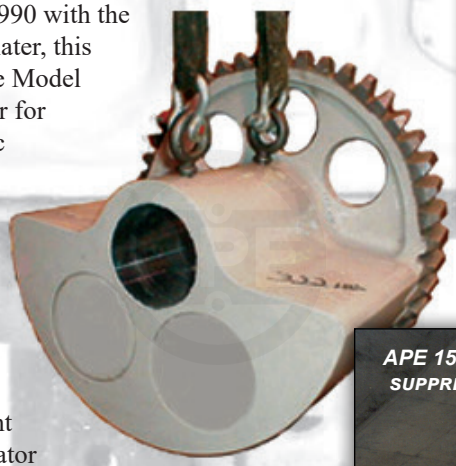
OLD TECHNOLOGY ***APE TECHNOLOGY***

APE'S REVOLUTIONARY TWO-STAGE ELASTOMERIC SUPPRESSOR SYSTEM CUTS UNWANTED VIBRATION TO THE CRANE LINE, DOUBLES LINE PULL CAPACITY, AND REDUCES THE OVERALL SUSPENDED WEIGHT.

MODEL 600 VIBRO WITH THE D180-42. FINISHING 1.8 M PILES.

The APE Vibratory Driver Extractor Revolution

APE revolutionized the vibratory pile driver/extractor in 1990 with the introduction of the APE Model 150. Almost two decades later, this revolutionary device is still the industry gold standard. The Model 150's patented technology includes a multistage suppressor for greater line pull, one piece enhanced heavy metal eccentric weight and gear, and height/weight adaptability for extreme job conditions. The Model 150 Vibro, in technological sophistication and durability, is still light years ahead of the competition.



APE Vibrator Eccentric/Gear

The introduction of the one-piece gear and eccentric weight eliminated unwanted bolts and connections inside the vibrator gearbox. The unique eccentric/gear incorporates helical cut gears that are final cut using a patented procedure that provides perfect timing and balance between all eccentrics. APE gearboxes have 50% less parts than the nearest competitor, dramatically improving serviceability and life.

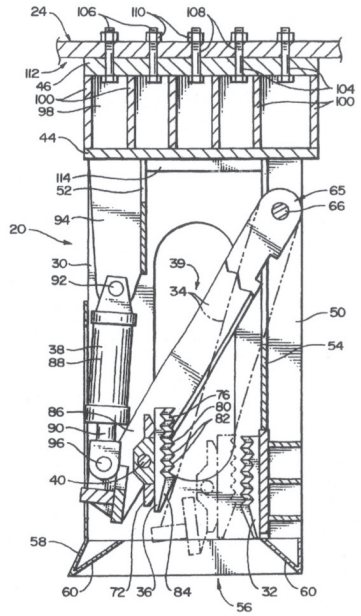
APE 150 FITTED WITH LOW HEADROOM SUPPRESSOR FOR RETROFIT WORK IN CALIFORNIA.

APE Heavy Metal Technology

Another result of APE's drive to create more simplified, serviceable, and efficient products is the development of the heavy metal enhanced eccentric. Each eccentric is filled with two solid lead or tungsten bars, giving them more mass. This extra mass allows one eccentric to do the work of two, thus eliminating bearings, shafts, and other components. APE's "T" vibrators (tungsten enhanced) are the most powerful machines money can buy.

Wood and Concrete Pile Clamps

APE single-arm wood and concrete clamps incorporate patented features not found on any other type of clamps. These features provide the contractor with an edge over his competition. APE developed the first wood and concrete pile clamps with a pivoting jaw and an open window that allows a pile crew to actually see the clamping jaws. APE clamps feature a topside anvil so piles can be driven without impacting the mounting bolts. The T-Bar mounting design eliminates the need to ever crawl inside the clamp jaws for attachment installation. The jaws are removable, making it easy to change from wood to concrete or pipe piles.



United States Patent
B1 5,609,380
Sep 12, 2000

Cage Clamp

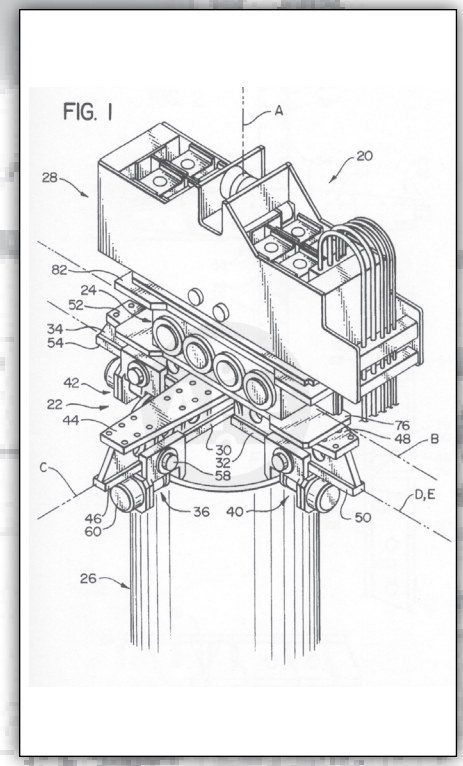
The APE Cage Clamp System streamlines the handling and placement of full length CFA cages into the pre-drilled pile. The Cage Clamp System can be used with any diameter and cage design. Consult the factory for further details.

Caisson Beam With Two Clamps

APE caisson beams are the highest quality available on the market. They feature a T-Bar configuration with a double row of mounting bolts. This design allows APE caisson beams to use short, stretch-resistant bolts without sacrificing beam strength. The centered, single row design favored by our competitors results in the clamps blocking access to the bolts. On the APE T-bar design, all bolts are easy to access and can handle piles from 16” (406 mm) to 20’ (6.09 m) piles. Moreover, APE has engineered every clamp attachment to take the same exact length of bolt. One size and length fits all, making for easy maintenance and repair.

Quad Clamp System

Caissons and large diameter piles become impossible to drive due to a phenomenon called deflection which causes diaphraming. To solve this problem, APE engineers developed a four way beam and clamp system. The clamps grip the pile every 90 degrees for balanced energy transfer. Side-by-side tests show that using four clamps mounted 90 degrees greatly reduces deflection and increases net amplitude to the pile tip while allowing for cost saving on casing wall thickness. The APE quad clamp system is vastly superior to the old style X beam which can cause deflection. The quad beam can be divided into two single beam systems for maximum versatility.



United States Patent August 5, 1997

Round concrete pile follower.

Box lead fixed pile gate.

Floating pile gate on front riding leader.

Patented two piece box helmet.

Concrete box insert.

DB32 with 24" Square box insert.

Round concrete insert for concrete piles.

Forklift mounted 7.5 Hydraulic Impact Hammer.

Hydraulic Impact Hammer Technology

In response to the great demand for low headroom hammers, needed on both seismic retrofit jobs and overhead obstructions such as power lines and indoor foundations, APE developed its own line of low headroom hydraulic impact hammers. APE hydraulic impact hammers feature a patented (US-006557649) double walled lifting cylinder that raises the ram from the bottom.

This technology greatly reduces the overall height, making the APE hydraulic hammer the shortest impact hammer on the market today. The short design reduces pile splicing labor and allows the driving of longer piles within the limited overhead space. In addition, the large ram and slower energy transfer speed makes this hammer line ideal for sheet pile finishing in hard soil conditions. Less pile stress means less pile damage during driving.

The Big Hammer

APE manufactures the largest hydraulic impact hammer manufactured in the United States. These hammers are designed to operate on our larger standard driver/extractor power units. The hammers incorporate technologies that eliminate the need for bulky container-size power units and control rooms and still deliver consistent stroke and unmatched efficiency. Stroke protections include optional blow count and energy delivery monitoring and pile run shut off.

The APE Diesel Revolution

In May of 1997, APE introduced German authorized and designed diesel hammers manufactured in Shanghai, China. These time-proven, single-acting, impact atomized diesel hammers are the highest quality diesel hammers available in the world.

All APE diesel hammers feature fast-remove trip systems, bolt on catch rings, in-line fuel filters, optional direct-drive anvils, as well as optional bottom lift hydraulic trip assemblies and infinitely variable hydraulically controlled fuel pumps. They are equipped to operate with biodiesel fuel which helps them run cleaner and start faster than any other diesel hammer on the market. Each hammer comes with a warranty package that is more than twice as long as any other in the industry. In addition, APE is the only manufacturer to demand that every drive cap and insert be fully machined on top and bottom for perfect anvil alignment ensuring maximum energy transfer to the pile.

Constant developments by our engineering team continue to keep APE a step ahead of the competition. APE diesel hammers remain the best value on the market by any standard.

A Model 20 drill in a swinging leader.

A Model 20 drill and an Adcock down-the-hole percussion drill.

Model 20 drill mounted on the APE rack and pinion leader with 15,000 pounds of crowd capacity.

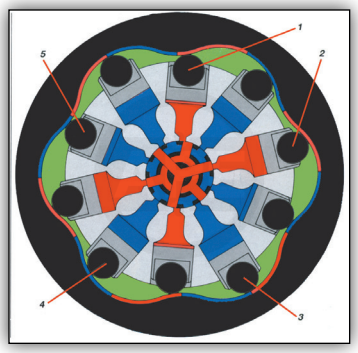
An APE 75 Drill in a pre-drill format on the side of a fixed leader with a King Kong in San Francisco, CA owned by Kiewit.

Direct Fluid To Torque Top Drive Augers

APE introduced cam-track technology to the augured-cast-in-place piling industry in 1993 when it converted a state-of-the-art Poclain hydraulic radial piston motor into a drilling tool. The compact motor, with its revolutionary cam-track roller pistons, needed only a hollow shaft and stronger bearings in order to revolutionize the top drive auger industry. No drill on the market today has the crowd force capacity of the APE drill. The cam-track technology converts hydraulic fluid directly to torque without the aid of gears or planetary drives. No bull gears can be found on the APE system, thereby avoiding the efficiency losses that plague gear reduction systems. The APE drill is rugged, self lubricating, and requires no maintenance. It can handle the abuse caused by down-the-hole hammers and it can even withstand the impact of telescoping kelly-bar applications.

APE Model 20 Drill

APE Model 50 Drill



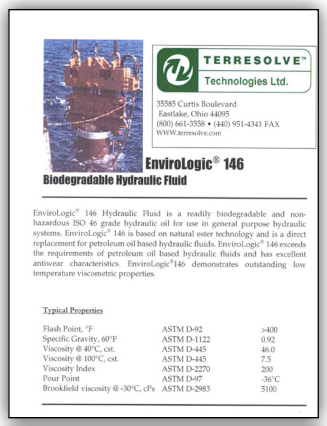
Cam Track Layout

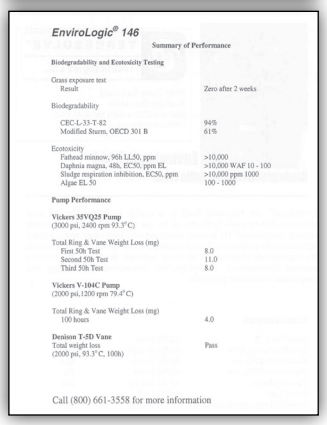
Excavator Mounted

APE is the Largest User of Vegetable Hydraulic Oil

In 1990, APE was the first to introduce pile driving and deep foundation equipment equipped with vegetable hydraulic oil. We are now the largest user of vegetable hydraulic oil in the USA. Our power units are designed with built-in spare oil tanks to replenish the main tank should a spill occur. APE has determined that its vegetable hydraulic oil provides even better quality and performance than the most expensive petrochemical hydraulic oils. Our entire rental fleet operates on vegetable oil. Of course, APE equipment owners may use whatever oil they desire. They overwhelmingly choose 100% biodegradable oil because they know that spills of any other type of oil are extremely costly. We choose to use vegetable oil because it makes sense environmentally and economically.

Petrochemicals harm wildlife and pollute our water supply. APE and our equipment owners have taken a leading role by setting an example of how to protect our rivers and streams using 100% readily biodegradable vegetable hydraulic oil.






APE
DANGER


APE
230
NON-TOXIC
BIODEGRADABLE
VEGETABLE
HYDRAULIC OIL


Slurry


VANCOUVER


APE
POLO JEANS

Pile Driving School

For the past 15 years APE, in conjunction with local unions throughout the United States and Canada, has been hosting a pile driving school free of charge for pile bucks around the country. The success of the school stems from the massive amount of knowledge that is presented by the APE staff through hands on experience at our locations or in the field. At APE's facilities, students see actual hammer manufacturing in process, including welding and machining of vibratory pile driver/extractors, drills, pile leads and other related equipment. Students participate with APE employees as they prepare pile hammers for shipment to actual job sites around the country.

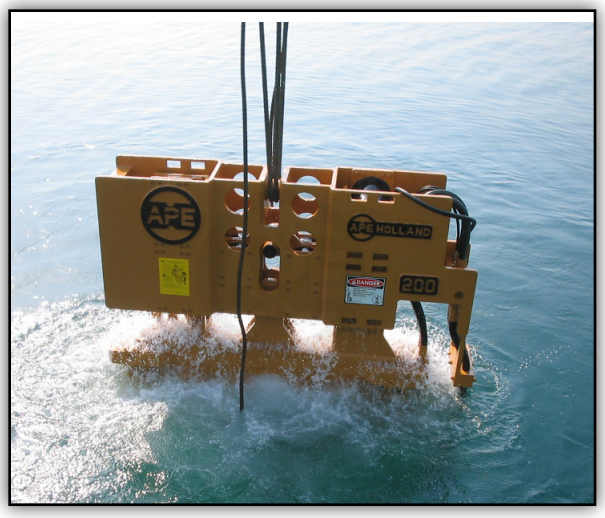
Contact APE at (800) 248-8498 regarding admission to the school and for the scheduling of future classes, or for more up to date information go to: **americanpiledriving.com**

Vibratory Driver/Extractors

APE Vibratory Driver/Extractors Features and Benefits:

- One-piece gear/eccentric eliminates fasteners inside the gearbox.
- Heavy-Metal technology raises energy for more amplitude.
- Multistage suppressor doubles the line pull at 1/3 of the hammer weight.
- Bolt-on suppressors adjust the height and weight to job site needs.
- Helical-cut gears add precision to the gear strength and eccentric speed.
- Spherical bearings allow the vibro to handle side loads on batter piles.
- Vibro can be used horizontally for stuck horizontal casing.
- Field-designed assembly makes maintaining APE products simple and easy.
- Gun-drilled top plate and manifolds eliminate unnecessary hydraulic hoses.
- O-ring sealed gearbox makes transition to underwater operations easy.
- Vegetable hydraulic oil reduces environmental impact and fines if a spill occurs.
- The suppressor is symmetrical and balanced for better looking and level-hanging vibro.
- The brake manifold is designed to stop the vibro faster.
- Bearing covers designed to keep vibro cooler and run longer."Silverback" Radiant technology "Currently offered on the new 300 series"
- Long-term warranty protection provides security on the investment.

VIBRATORY EQUATIONS	
Amplitude	$\frac{em * 2}{vm}$
Drive Force In U.S. Tons	$\frac{em * f^2 * 0.0142}{1{,}000{,}000}$
Amplitude & Drive Force Variables	em = Eccentric Moment f = Frequency vm = Vibrating Mass (lb)
Pile Weight per Foot	(od - wt) * wt * 10.69
Pile Weight Variables	od = Pile Diameter (in) wt = Pile Wall Thickness (in)
Vibrating Mass equals the total of the vibratory gearbox, inner suppressor, pile and a minimum of 4% for soil bond to pile.	



VIBRATORY DRIVER / EXTRACTOR SPECIFICATIONS

	6	20	50	60	100	150T	200	200-6	400	600	600B
Eccentric Moment	60 in-lbs (.69 kg-m)	900 in-lbs (10.37 kg-m)	1,300 in-lbs (14.98 kg-m)	1,245 in-lbs (14.35 kg-m)	2,200 in-lbs (25.35 kg-m)	2,600 in-lbs (29.96 kg-m)	4,400 in-lbs (50.69 kg-m)	6,600 in-lbs (76.04 kg-m)	11,500 in-lbs (132.49 kg-m)	17,200 in-lbs (198.17 kg-m)	17,200 in-lbs (198.17 kg-m)
Drive Force at Rated Frequency	4 tons (37 kN)	35 tons (310 kN)	50 tons (447 kN)	61 tons (538 kN)	85 tons (757 kN)	101 tons (894 kN)	170 tons (1,513 kN)	255 tons (2,270 kN)	298 tons (2,648 kN)	445 tons (3,960 kN)	445 tons (3,960 kN)
Rated Frequency	0 - 2,200 vpm	0 - 1,650 vpm	0 - 1,650 vpm	0 - 1850 vpm	0 - 1,650 vpm	0 - 1650 vpm	0 - 1,650 vpm	0 - 1,650 vpm	0 - 1,350 vpm	0 - 1,350 vpm	0 - 1,350 vpm
Max Line Pull	6 tons (53 kN)	28 tons (249 kN)	56 tons (498 kN)	56 tons (498 kN)	45 tons (400 kN)	108 tons (961 kN)	133 tons (1,183 kN)	185 tons (1,646 kN)	234 tons (2,082 kN)	351 tons (3,123 kN)	451 tons (4,012 kN)
Max Bare Hammer Weight	720 lbs (327 kg)	2,510 lbs (1,139 kg)	4,550 lbs (2,064 kg)	4,542 lbs (2,060 kg)	5,900 lbs (2,676 kg)	8,500 lbs (3,856 kg)	12,760 lbs (5,788 kg)	18,900 lbs (8,573 kg)	34,010 lbs (15,427 kg)	45,225 lbs (20,514 kg)	59,000 lbs (26,762 kg)
Throat Width	6.00 in (15 cm)	12.00 in (30 cm)	14.63 in (37 cm)	19" (48 cm)	14.50 in (37 cm)	14.25 in (36 cm)	14.75 in (37 cm)	14.75 in (37 cm)	33.00 in (84 cm)	37.00 in (94 cm)	37.88 in (96 cm)
Length	36.25 in (92 cm)	36.50 in (93 cm)	57.25 in (145 cm)	93.88 in (238.45 cm)	61.88 in (157 cm)	88.75 in (225 cm)	104.00 in (264 cm)	140.00 in (356 cm)	151.00 in (383 cm)	183.50 in (466 cm)	183.50 in (466 cm)
Height w/o Clamp (Model 3 & 6 Incl. Clamp)	38.00 in (97 cm)	45.00 in (114 cm)	53.50 in (136 cm)	54.26" (137 cm)	54.13 in (137 cm)	72.38 in (184 cm)	65.50 in (166 cm)	75.00 in (191 cm)	106.75 in (271 cm)	108.19 in (275 cm)	127.07 in (323 cm)

Silverback™ VIBRATORY DRIVER HIGH PERFORMANCE SPECIFICATION

	300-2	300-2	300-4	300-6	300-6
Power Unit	456/C9	577/C13	800/C18	800/C18	950/C27
Eccentric Moment	2,660 in-lbs (31 kg-m)	2,660 in-lbs (31 kg-m)	5,320 in-lbs (61.29 kg-m)	6,600 in-lbs (76.04 kg-m)	8,000 in-lbs (92.17 kgm)
Drive Force at Rated Frequency	103 tons (915 kN)	129 tons (1,150 kN)	259 tons (2,300 kN)	255 tons (2,270 kN)	309 tons (2,751 kN)
Rated Frequency	0 - 1,650 vpm	0 - 1,850 vpm	0 - 1,850 vpm	0 - 1,650 vpm	0 - 1650 vpm
Max Line Pull	129 tons (1,150 kN)	129 tons (1,150 kN)	133 tons (1,183 kN)	185 tons (1,646 kN)	185 tons (1,646 kN)
Max Bare Hammer Weight	9,480 lbs (4,300 kg)	9,480 lbs (4,300 kg)	16,850 lbs (7,643 kg)	18,900 lbs (8,573 kg)	21,200 lbs (9,616 kg)
Throat Width	22.00 in (55 cm)	22.00 in (55 cm)	21.67 in (55 cm)	14.75 in (37 cm)	23.00 in (58 cm)
Length	94.00 in (239 cm)	94.00 in (239 cm)	125.6 in (319 cm)	140.00 in (356 cm)	155.00 in (394 cm)
Height w/o Clamp (Model 3 & 6 Incl. Clamp)	71.40 in (181 cm)	71.40 in (181 cm)	81.62 in (207 cm)	75.00 in (191 cm)	81.62 in (207 cm)

Note: All technical specifications are subject to change without notice.

Variable Moment Vibratory Driver/Extractors

APE Variable Moment Technology lets our driver/extractors shine in jobs with vibration sensitive requirements. APE Variable Moment Technology is teamed with all the special features available with the full line of APE Vibratory Driver/Extractors.

- Gun drilled top plate and manifolds eliminate unnecessary hydraulic hoses.
- O-ring sealed gearbox makes transition to underwater operations easy.
- Vegetable hydraulic oil reduces environmental impact and fines if a spill occurs.
- Long term warranty protection provides security on the investment.

VARIABLE MOMENT SPECIFICATIONS				
Model	**120VM**	**170VM**	**250VM**	**300VM**
Eccentric Moment	1,600 in-lb 18.43 kgm	2,250 in-lb 25.92 kgm	4,500 in lb 51.85 kgm	4,532 in lb 52 kgm
Drive Force	95 tons 849 kN	134 tons 1,195 kN	269 tons 2,389 kN	284 tons 2,524 kN
Frequency (vpm) Maximum	0 - 2,050	0 - 2,050	0 - 2,050	0 - 2100
Max Line Pull	81 tons 721 kN	81 tons 721 kN	99 tons 881 kN	69 tons 614 kN
Max Bare Hammer Weight	7,500 lb 3,402 kg	8,900 lb 4,037 kg	15,400 lb 6,985 kg	17,576 lb 7,643 kg
Throat Width	14 in 36 cm	14 in 36 cm	14 in 36 cm	19.5” 50 cm
Length	69 in 175 cm	69 in 175 cm	69 in 175 cm	99 in 253 cm
Height w/o Clamp	77 in 196 cm	77 in 196 cm	102 in 259 cm	102 in 259 cm

Excavator Mounted Vibratory Driver/Extractors

The APE Excavator Mounted Vibratory Driver/Extractors offer advanced, profit generating features that are ahead of the competition.

- Designed for mounting and operation off backhoes for situations where crane use is not preferable.
- Center safety pin shows pile crew and crane operator how much line pull is on pile and crane.
- One piece helical gear/eccentric eliminates keyways, pins, splines, and bolts inside the gearbox.
- Heavy-metal enhanced eccentric design reduces internal parts by up to 75% while increasing dynamic force.
- Giant spherical bearings allow for batter operations without damage and reduce heat for extremely long life.
- Computer-designed gearbox is perfectly balanced with lowest center of gravity on the market.
- Power unit comes standard with tool kit and dual controls on pendant and control panel.
- Very simple open-loop hydraulic system with highest quality valves with lighted indicators.
- Variable flow in both directions for use on drills, winches, hydraulic hammers and other attachments.
- Oversized radiator and hydraulic oil cooler with proven performance in the heat of Saudi Arabia.
- Four eccentric moment sizes allow APE to fine tune your vibro to fit your excavator's engine power.
- By changing only the eccentric moment, one vibro can adjust to four different power ranges.
- All vibro eccentric sizes have the same clamp, bearings, suppressor housing and related parts.
- APE excavator mounted vibros enjoy parts compatibility with all other APE vibros - including jaws!
- Goose neck extensions available and are custom made for maximum engineering safety.

EXCAVATOR MOUNTED SPECIFICATIONS					
	E-SERIES				X-SERIES
Model	15E	20E	50E	100E	64X
Eccentric Moment	600 in-lb 6.91 kgm	900 in-lb 10.37 kgm	1,300 in-lb 14.98 kgm	2,200 in-lb 25.35 kgm	781 in-lb 9 kgm
Drive Force	23 tons 206 kN	35 tons 310 kN	50 tons 447 kN	85 tons 757 kN	30 tons 269 kN
Max Frequency (vpm)	0 - 1,650	0 - 1,650	0 - 1,650	0 - 1,650	0 - 1,650
Max Line Pull	9 tons 80 kN	18 tons 160 kN	18 tons 160 kN	44 tons 391 kN	32 tons 285 kN
Max Bare Hammer Weight	1,690 lbs 767 kg	2,540 lbs 1,152 kg	3,940 lbs 1,787 kg	4,840 lbs 2,195 kg	4,650 lb 2,109 kg
Throat Width	9.63 in 24cm	12.38 in 31 cm	14 in 36 cm	14.5 in 37 cm	13.75 in 35 cm
Length	36.5 in 93 cm	36.5 in 93 cm	57.25 in 145 cm	57 in 145 cm	70 in 178 cm
Height w/o Clamp	40.13 in 102 cm	47.88 in 122 cm	49.13 in 125 cm	56.5 in 144 cm	42.5 in 108 cm

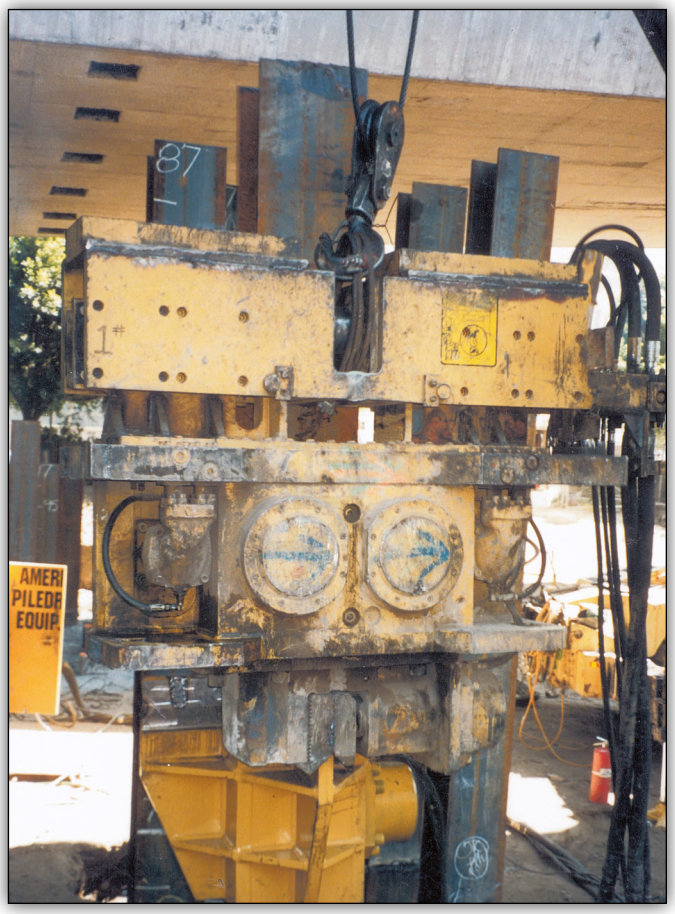
Note: All technical specifications are subject to change without notice.

Low Headroom Vibratory Driver/Extractors

Low Headroom Driver/Extractors

APE Low headroom vibratory pile driver/extractors are designed to allow the contractor to drive full-length piles under bridges or inside buildings. This system was created to solve low headroom issues for seismic retrofit applications. Specifications for the dimensions and max line pull are custom for the job the vibratory hammer will be used on. The suppressor setup will be modified by APE to work with specified height restrictions on the job site. Please consult an APE representative to discuss your particular application by calling (800) 248-8498.

LOW HEADROOM SPECIFICATIONS			
Model	**150**	**200**	**200-6**
Eccentric Moment	2,200 in-lb 25.35 kgm	4,400 in-lb 50.69 kgm	6,600 in-lb 76.04 kgm
Drive Force	85 tons 756 kN	170 tons 1,513 kN	255 tons 2,270 kN
Max Frequency (vpm)	0 - 1,650	0 - 1,650	0 - 1,650
Max Line Pull	Consult Factory	Consult Factory	Consult Factory
Max Bare Hammer Weight	Consult Factory	Consult Factory	Consult Factory
Throat Width	Consult Factory	Consult Factory	Consult Factory
Length	Consult Factory	Consult Factory	Consult Factory
Height w/o Clamp	Consult Factory	Consult Factory	Consult Factory



Tandem Vibratory Driver/Extractors

Tandem Driver/Extractors

Tandem Vibratory driver/extractors allow for the installation of high mass casings. APE's constant innovation has developed a method for joining multiple hammers together to match the casing and soil conditions for any job. From the World's largest vibratory driver/extractor to the original low headroom setup, APE will always be your source for the solutions that work. Tandem vibrators can be mounted on a common steel plate with a passage in the center to allow the pile to pass through. This type of setup allows massive jaw pivots to open like a gate, allowing the pile crew to come in from the side to attach the machine to the pile.

TANDEM DRIVER/EXTRACTOR SPECIFICATIONS

Model	50 Tandem Low Headroom	100 Tandem Low Headroom	150 Tandem Low Headroom	200 Tandem Low Headroom	400 Tandem 11' Quad Clamp	600 Tandem 15' Quad Clamp
Eccentric Moment	2,600 in-lbs 29.96 kgm	4,400 in-lbs 50.69 kgm	4,400 in-lbs 50.69 kgm	8,800 in-lbs 101.4kgm	23,000 in-lbs 264.99 kgm	34,400 in-lbs 396.3 kgm
Drive Force	101 tons 949 kN	170 tons 1,513 kN	181 tons 1,606 kN	361 tons 3,213 kN	640 tons 5,695 kN	957 tons 8,518 N
Max Frequency (vpm)	0 - 1,650	0 - 1,650	0 - 1,700	0 - 1,700	0 - 1,400	0 - 1,400
Pile Clamping Force	Consult Factory	Consult Factory	Consult Factory	Consult Factory	Consult Factory	Consult Factory
Max Line Pull	112 tons 996 kN	186 tons 1,655 kN	216 tons 1,922 kN	266 tons 2,366 kN	468 tons 4,164 kN	702 tons 6,245 kN
Total Setup Weight	Consult Factory	Consult Factory	Consult Factory	Consult Factory	Consult Factory	Consult Factory
Max Pressure	Consult Factory	Consult Factory	Consult Factory	Consult Factory	Consult Factory	Consult Factory
Length	Consult Factory	Consult Factory	Consult Factory	Consult Factory	Consult Factory	Consult Factory
Width	Consult Factory	Consult Factory	Consult Factory	Consult Factory	Consult Factory	Consult Factory
Height with Clamp	Consult Factory	Consult Factory	Consult Factory	Consult Factory	Consult Factory	Consult Factory

Note: All technical specifications are subject to change without notice.


BOTTOM DRIVE


NATIONAL

Wick Drain Machines

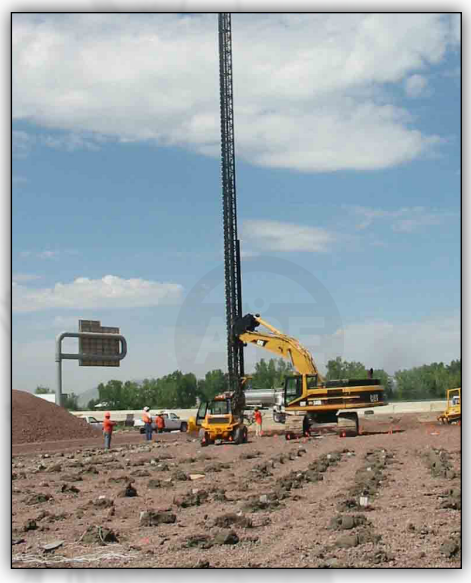
APE Wick Drain:

The APE wick installer allows the mandrel to pass directly through the center of the vibrator, while a sprocket drive provides static force. The sprocket drive delivers equal force on both sides of the mandrel for perfect axial loading with "On The Fly" vibration when needed with all the crowd right at the point of entry into the ground stabilizing mandrel flexion.

The APE wick installer was made for super-long wick drain installation. The lightweight machine mounts at the bottom of the leads rather than at the top. Leads can be longer because they only need to support the weight of the mandrel. The entire machine can be fitted to an excavator without any added power units or valves. Capable excavator models may vary for unassisted erection. Fixed and variable systems available. High speed/low torque and low torque/high speed and optional shift on the fly.

BOTTOMDRIVE™ WICK DRAIN SPECIFICATIONS

Bottomdrive™ Model	28	100	200
Static (Crowd) Force (USt/kN)	28 US tons (247 kN)	27.8 US tons (247 kN)	27.8 US tons (247 kN)
Dynamic Force @ 1650 vpm (USt/kN)	-	23.7 US tons (211 kN)	56 US tons (498 kN)
Combined Dynamic Force (USt/kN)	-	51.5 US tons (458 kN)	83.8 US tons (746 kN)
Operating Frequency Max. (vpm)	-	0 - 1,650 vpm	0-1,650 vpm
Suspended Weight (lb/kg)	5,623 lb (2,550.55 kg)	8,500 lb (3,855 kg)	10,780 lb (4,889 kg)
Maximum Pressure (psi/bar)	5,500 psi (380 bars)	5,500 psi (380 bars)	5,500 psi (380 bars)
Length (in/cm)	70.94 in (180 cm)	84 in (213 cm)	84 in (213 cm)
Width (in/cm)	47 in (119 cm)	47 in (119 cm)	47 in (119 cm)
Height (in/cm)	91.5 in (232.4 cm)	109 in (276.8 cm)	120 in (304.8 cm)

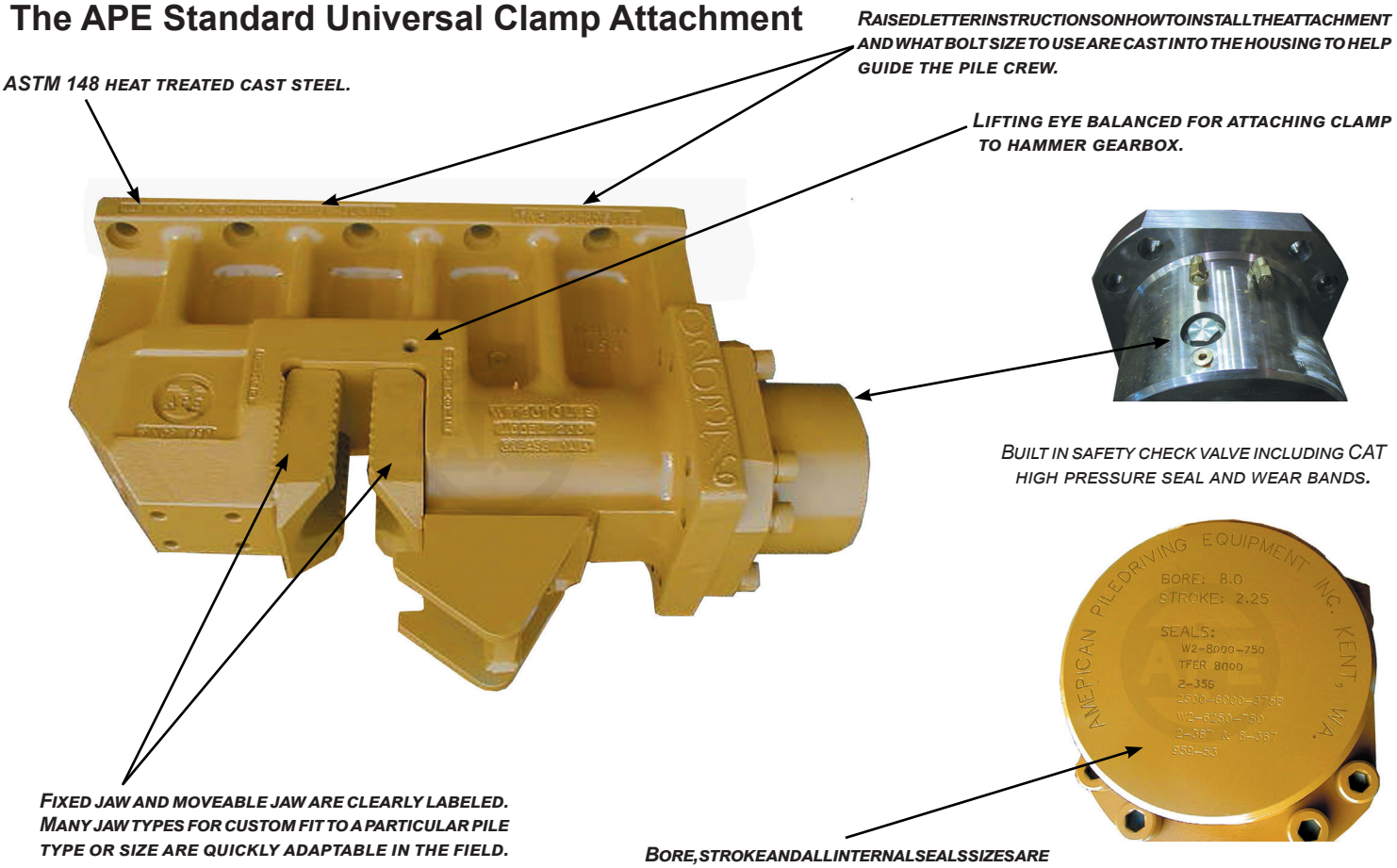


Attachments Vibratory Drivers/Extractors

Attachments adapt a driver/extractor to fit a particular pile type, such as an H-beam, steel sheet pile, or pipe pile. Most vibratory pile driver/extractors come equipped with the APE standard universal clamp that has the ability to fit double sheet piles and H-beams. The universal clamp can be quickly adapted to fit flat plates or small diameter pipe piles including train rail. APE can also manufacture adapters to mount competitor attachments on APE hammers and APE attachments on competitor equipment.

APE manufactures attachments for every type of pile, yet all APE attachments use the same mounting bolts, so contractors don't experience delays in the field due to improper bolt sizes. APE clamp cylinders are machined from solid blocks of steel for maximum strength and durability. Safety check valves keep the jaws closed even in the event of a hose failure and every seal in the clamp is listed on the cylinder.

The APE Standard Universal Clamp Attachment

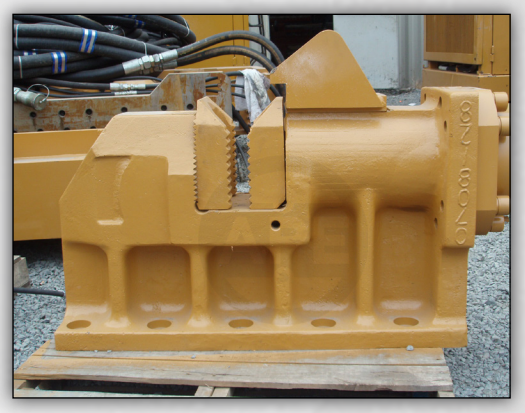


MODEL 50E WITH A STANDARD 50 CLAMP AND SINGLE/DOUBLE JAWS

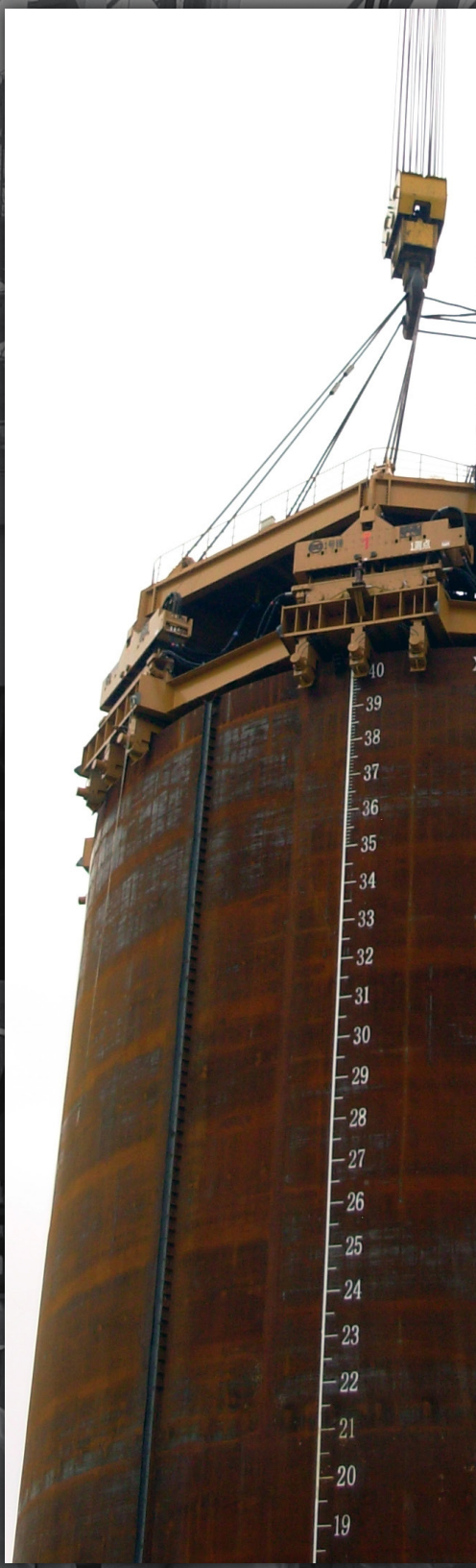
MODEL 20 VIBRO WITH A MODEL 20 CLAMP.

MODEL 150T VIBRO WITH A MODEL 150 CLAMP.

MODEL 200 VIBRO WITH A MODEL 200 SHEET CLAMP EQUIPPED WITH DOUBLE SHEET JAWS.



Driving In



Estimated Project Cost: 10.7 Billion US Dollars
Estimated Project Completion Date: 2016
Bridge Length: 23.9 Miles
Pile Weight: 604 Metric Tons
Number of Piles to be Driven: 127
Wall Thickness of Pile: 1 inch or 25 mm
Diameter of Pile: 72 feet or 22 meters
Pile Length Average: 136 ft or 41.5 meters

The Hong Kong-Zhuhai-Macau
Will Be The Worlds Longe
To Drive The Piles APE In
The World's 2nd Largest V

NNOVATION

u Bridge Construction Project
est Bridge At Completion
ntroduces The OctaKong
Vibratory Driver Extractor

Eccentric Moment: 8 x 20,000 in lbs or 230.42 kgm
Deepest Embedment: 72 feet or 22 meters
Total OctaKong Weight: 427.2 metric tons
Total HP: 8 x 1050 Horse Power
Vibros: 8 X 45,309 lbs or 20,552 kg
Wheel Beam: 8 x 6,671 lbs or 3,026 kg
Vibro Beam: 8 x 48,841 lbs or 22,154 kg
Lifting Structure: 135,233 lbs or 61,341 kg

World's Largest Pile Drive

A record 30 meter (98 foot) diameter steel pipe pil
of China and APE near Hainan Island for the new i
pile is 30 meters in diameter, 34 meters

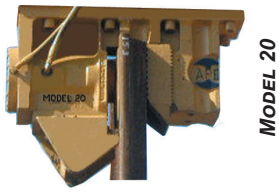
Designed and patented by APE, The Dodecakong consists of twelve APE Model 600 vibros mounted
power the Dodecakong delivers nearly 4,000 gallons of oil per minute producing a massive 7,200 ton
system to keep all components in perfect synchronization. The roof of the DodecaKong is large enoug
hammer weight is 700 metric tons with 4,200 tons of line pull ability.

n by the APE DodecaKong!
e was driven by First Harbor Engineering Company
nternational airport for Sanya, China. The massive
s long and weighs over 600 metric tons.

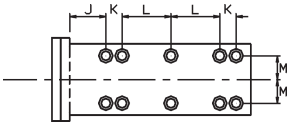
l together and powered by twelve CAT 32 - 1200 HP engines supplying 14,400 HP combined. At full
s of drive force. There are over 20,000 feet of hydraulic lines (3.8 miles) with an advanced control
gh to accommodate a basketball court with room for nearly 1,000 fans on each side. The total

Model 20, 50, 150, 200 and 400 Universal Clamps

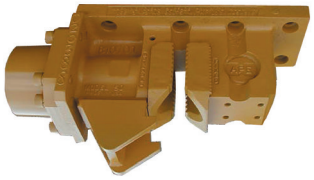
Model	Weight	Piston Dia.	Piston Stroke	Cyl. Force	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	R
20	790 lbs 358 kg	5 in 127 mm	2.25 in 57 mm	88 kips 391 kN	29.63 in 752 mm	10 in 254 mm	28.63 in 727 mm	11.75 in 298 mm	8.56 in 217 mm	4.62 in 117 mm	2.12 in 54 mm	6 in 152 mm	13.5 in 343 mm	4.62 in 117 mm	2.75 in 70 mm	8.25 in 209 mm	4 in 101 mm	7 in 178 mm	5 in 127 mm	
50	1350 lbs 612 kg	8 in 203 mm	2.25 in 57 mm	226 kips 1005 kN	44 in 1117 mm	12 in 304 mm	35 in 889 mm	12.25 in 311 mm	10.25 260 mm	7.19 in 182 mm	1.44 in 38 mm	14 in 356 mm	22.38 in 568 mm	5 in 127 mm	11in 279 mm	8.25 in 209 mm	4 in 101 mm	15.17 in 385 mm	5 in 127 mm	
150	1540 lbs 698 kg	8 in 203 mm	2.25 in 57 mm	226 kips 1005 kN	44 in 1117 mm	12 in 304 mm	35 in 889 mm	12.88 in 327 mm	10.25 260 mm	7 in 178 mm	1.44 in 41 mm	14 in 356 mm	27.75 in 705 mm	5 in 127 mm	11 in 279 mm	8.25 in 209 mm	4 in 101 mm	15 in 383 mm	5 in 127 mm	
200	2200 lbs 998 kg	8 in 203 mm	2.25 in 57 mm	226 kips 1005 kN	50 in 270 mm	11.75 in 298 mm	41 in 1041 mm	18.25 in 463 mm	9 in 228 mm	7 in 178 mm	1.69 in 44 mm	15 in 381 mm	29.88 in 759 mm	5.75 in 146 mm	8.25 in 210 mm		4 in 102 mm	21 in 533 mm	5 in 127 mm	
300	2850 lbs 1295 kg	10 in 254 mm	3 in 76 mm	392 kips 1744 kN	57 in 1450 mm	45.25 in 1200 mm	12 in 305 mm	15 in 381 mm	35.25 in 819 mm	22.63 in 575 mm	2.5 in 64 mm	10.88 in 276 mm		9 in 229 mm	7.38 in 187 mm	5.88 in 149 mm	8.25 in 210 mm	4.28 in 109 mm	4 in 102 mm	24.13 in 613 mm
400	7200 lbs 3266 kg	15 in 381 mm	2.85 in 72.4 mm	800 kips 3,559 kN	72.4 in 1,839mm	15.75 in 400 mm	60 in 1,524 mm	30.8 in 782.3 mm	15.8 in 401.3 mm	11 in 279.4 mm	2.86 in 72.6 mm	22 in 558.8 mm	46 in 1,168mm	5.75 in 146 mm	Consult Factory		4 in 101.6 mm	9.2 in 233.7 mm	6.44 in 163.6 mm	



Model 20



20 Bolt Pattern



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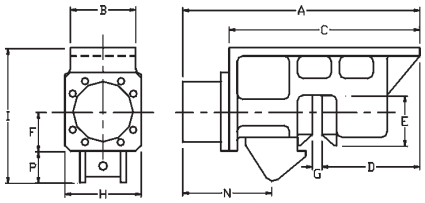
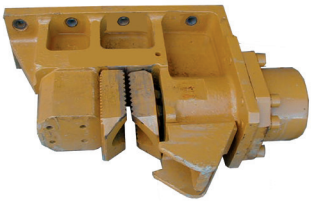
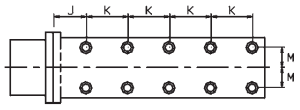




Model 150



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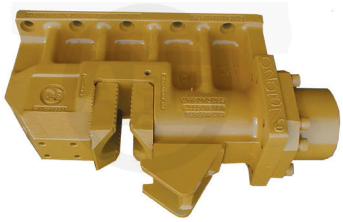

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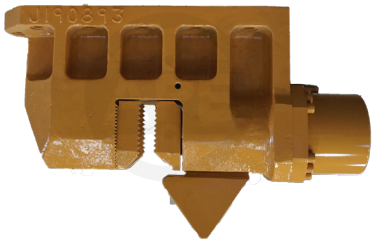
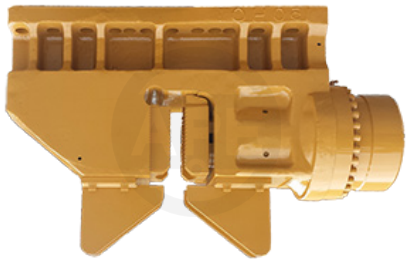
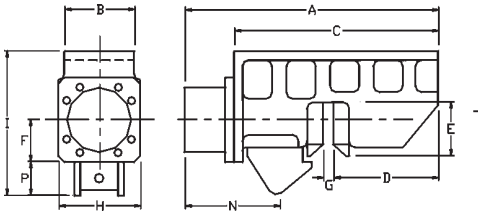
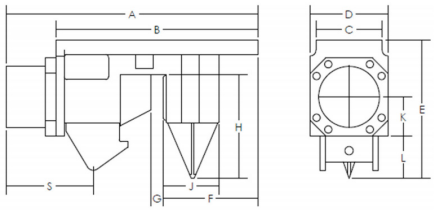


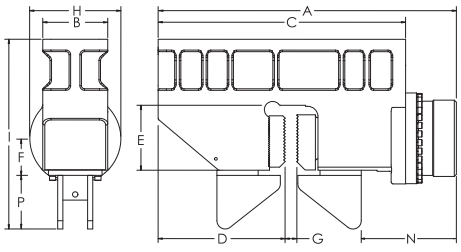
Model 300

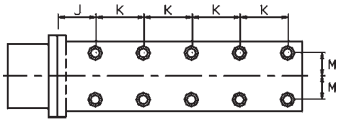


Model 400

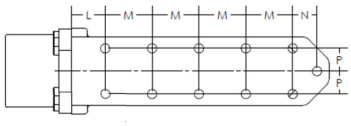




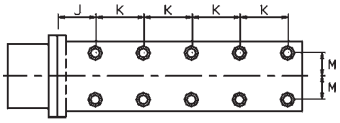




200 Bolt Pattern



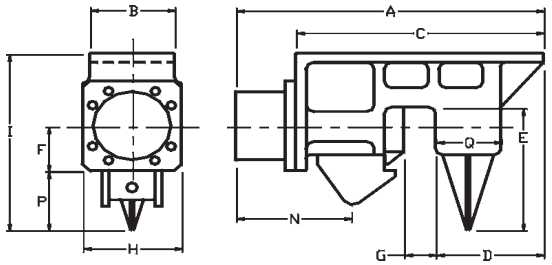
300 Bolt Pattern

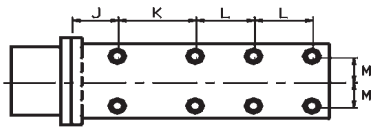


400 Bolt Pattern

Model 50 and 150 Dunce Clamps

Model	Weight	Piston Dia.	Piston Stroke	Cyl. Force	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q
50	1,350 lbs 612 kg	8 in 20.3 cm	2.25 in 5.7 cm	226 kips 1,005 kN	44 in 111.7 cm	12 in 30.4 cm	35 in 88.9 cm	12.25 in 31.1 cm	10.25 26.0 cm	7 in 17.8 cm	1.75 in 44.5 cm	14 in 35.6 cm	22.75 in 57.7 cm	5 in 12.7 cm	11 in 27.9 cm	8.25 in 20.9 cm	4 in 10.1 cm	15 in 38.3 cm	5 in 12.7 cm	11.5 in 29.2 cm
150	1,540 lbs 698 kg	8 in 20.3 cm	2.25 in 5.7 cm	226 kips 1,005 kN	44 in 111.7 cm	12 in 30.4 cm	35 in 88.9 cm	12.88 in 32.7 cm	10.25 26.0 cm	7 in 17.8 cm	1.75 in 44.5 cm	14 in 35.6 cm	27.75 in 70.5 cm	5 in 12.7 cm	11 in 27.9 cm	8.25 in 20.9 cm	4 in 10.1 cm	15 in 38.3 cm	5 in 12.7 cm	11.5 in 29.2 cm

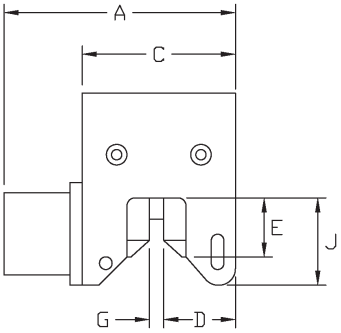


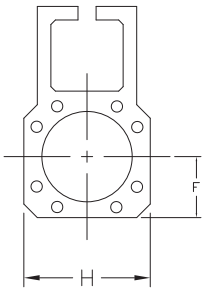


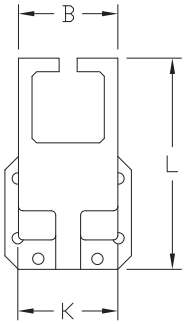
Model 150 Dunce

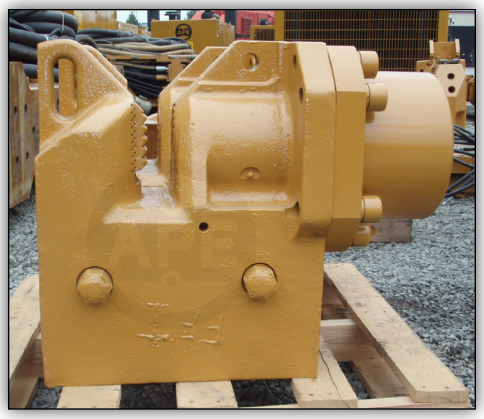
Model 100 and 200 Caisson Clamps

Model	Weight	Piston Dia.	Piston Stroke	Cyl. Force	A	B	C	D	E	F	G	H	J	K	L
100	1,100 lbs 498 kg	8 in 203 mm	2.25 in 57 mm	226 kips 1,005 kN	25.63 in 651 mm	11 in 279 mm	18.63 in 473 mm	6 in 152 mm	6.63 in 168 mm	6.25 in 159 mm	1.5 in 38 mm	14 in 355 mm	10.63 in 270 mm	11 in 279 mm	23.38 in 594 mm
200	1,340 lbs 608 kg	8 in 203 mm	2.25 in 57 mm	226 kips 1,005 kN	28.56 in 725 kN	11 in 279 mm	22.56 in 573 mm	10.81 in 274 mm	6.63 in 168 mm	7.25 in 184 mm	1.5 in 38 mm	14 in 355 mm	11 in 270 mm	11 279 mm	23.25 in 590 mm



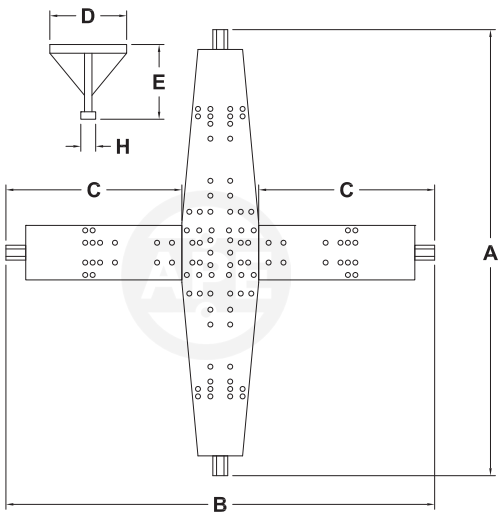






Quad Beam

Model	Weight	A	B	C	D	E	H
10 ft	7000 lbs 3175 kg	120 in 304.8 cm	118 in 300 cm	49 in 124.5 cm	22 in 55.9 cm	24 in 61 cm	6 in 152 mm
11 ft	9,500 lbs 4,309 kg	134 in 340 cm	136 in 345 cm	53 in 134.6 cm	31 in 78.7 cm	21 in 53.3 cm	6 in 152 mm
12 ft	8650 lbs 3920 kg	144 in 365.8 cm	144 in 365.8 cm	57.81 in 146.8 cm	28.38 in 72.1 cm	24 in 61 cm	6 in 152 mm
13 ft	13570 lbs 6155 kg	156 in 386 cm	156 in 386 cm	62.5 in 158.8 cm	31 in 78.7 cm	30 in 76.2 cm	6 in 152 mm
15 ft	13,000 lbs 5896 kg	180 in 457.2 cm	184 in 467.3 cm	75 in 190.5 cm	31 in 78.7 cm	30 in 76.2 cm	6 in 152 mm
17 ft	15,000 lbs 6803 kg	206 in 523.2 cm	208 in 528.3 cm	89 in 226 cm	31 in 78.7 cm	40 in 101.6 cm	6 in 152 mm

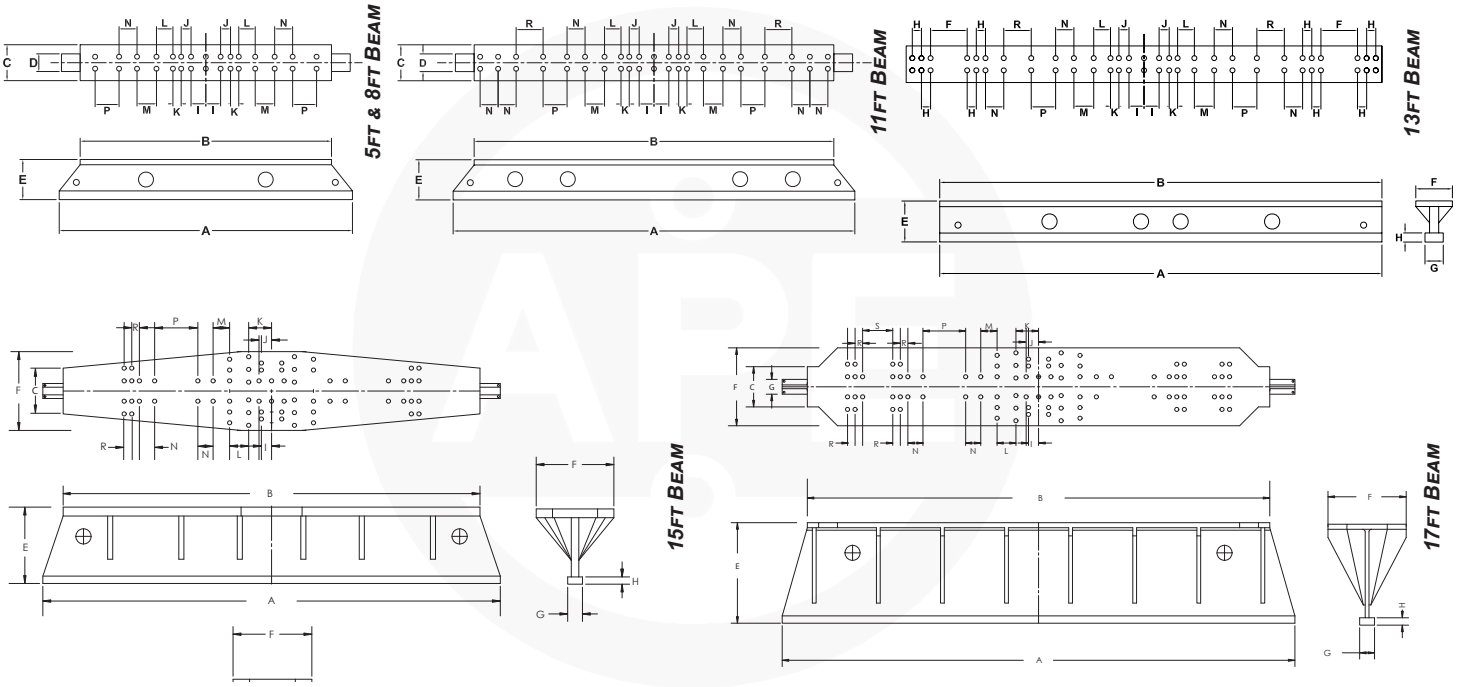


CLAMP EQUATIONS	
Clamp Cylinder Force	$(dm^2 * 0.7854 * p) / 2,000$
Clamp Gripping Force	Clamp Cylinder Force * 2
Clamp and Gripping Force Variables	dm = Diameter, p = Pressure

Note: All technical specifications are subject to change without notice.

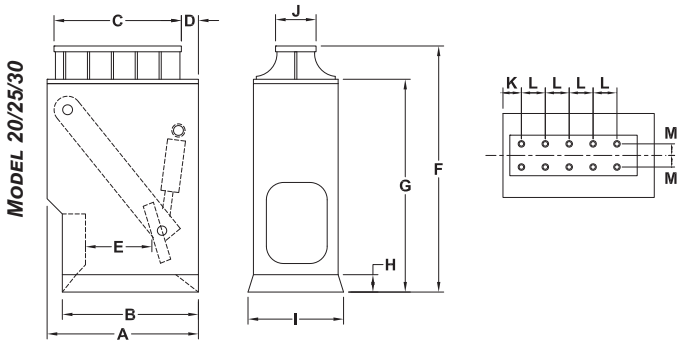
Standard Caisson Beams

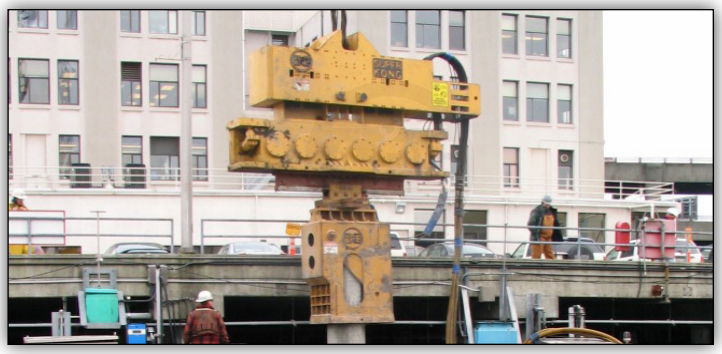
Model	Max Dia. Caisson	Weight	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	R	S
5 ft	33.15 in 0.84 m	1,000 lbs 454 kg	60 in 1.52 m	84 in 2.13 m		5.9 in 150 mm	13.75 in 349 mm	12 in 305 mm	5.9 in 150 mm	3 in 76 mm	4.94 in 125 mm	3.31 in 84 mm	2.75 in 70 mm	5.5 in 140 mm	6.5 in 165 mm	6 in 152 mm	8 in 203 mm	-	
8 ft	69.15 in 1.75 m	1,500 lbs 680 kg	98 in 2.48 m	84 in 2.13 m		5.9 in 150 mm	13.75 in 349 mm	12 in 305 mm	5.9 in 150 mm	3 in 76 mm	4.94 in 125 mm	3.31 in 84 mm	2.75 in 70 mm	5.5 in 140 mm	6.5 in 165 mm	6 in 152 mm	8 in 203 mm	-	
11 ft	106.00 in 2.69 m	3,030 lbs 1,374 kg	132.5 in 3.35 m	120 in 3.04 m		5.9 in 150 mm	13.41 in 340 mm	12 in 305 mm	5.9 in 150 mm	3 in 76 mm	4.94 in 125 mm	3.31 in 84 mm	2.75 in 70 mm	5.5 in 140 mm	6.5 in 165 mm	6 in 152 mm	8 in 203 mm	9 in 229 mm	
13 ft	129.5 in 3.29 m	3,593 lbs 1,630 kg	156 in 3.96 m	156 in 3.96 m			18 in 457 mm	13.5 in 343 mm	5.9 in 150 mm	3 in 76 mm	5 in 127 mm	3.31 in 84 mm	2.75 in 70 mm	5.5 in 140 mm	6.5 in 165 mm	6 in 152 mm	8 in 203 mm	9 in 229 mm	
15 ft	153.5 in 3.9 m	8889 lb 4032 kg	180 in 4.57 m	164 in 4.165 m	18 in 45.72 cm		30.04 in 76.30 cm	31 in 78.74 cm	5.9 in 150 mm	2.91 in 73.9 mm	4.00 in 101.6 mm	4.94 in 125.73 mm	9 in 228.6 mm	7.5 in 190.5 mm	6.5 in 165.1 mm	6 in 152.4 mm	17 in 431.8 mm	3 in 76.2 mm	
17 ft	177.5 in 4.51 m	8368.7 lb 3800.5 kg	204 in 5.18 m	184 in 4.674 m	16 in 40.64 cm		40 in 101.6 cm	31 in 78.74 cm	5.9 in 150 mm	2.91 in 73.9 mm	4.00 in 101.6 mm	4.94 in 125.73 mm	9 in 228.6 mm	7.5 in 190.5 mm	6.5 in 165.1 mm	6 in 152.4 mm	17 in 431.8 mm		12 in 304.8 mm



Wood/Concrete Clamps

Model	Weight	Piston Dia.	Cyl. Force	Clamp Force	A	B	C	D	E	F	G	H	I	J	K	L	M
20	4,500 lbs 2,041 kg	7 in 178 mm	135 kips 600 kN	270 kips 1200 kN	44 in 117 cm	42 in 106.7 cm	44 in 117.8 cm	-	20.5 in 52 cm	72 in 182.9 cm	58 in 147.3 cm	6.0 in 15.2 cm	31.91 in 81.05 cm	14 in 35.6 cm	4 in 10.2 cm	8.25 in 21 cm	4 in 10.2 cm
25	6,200 lbs 2,811 kg	7 in 178 mm	135 kips 600 kN	270 kips 1200 kN	52.25 in 13.2 cm	47 in 119.4 cm	44 in 117.8 cm	6 in 12.7 cm	25.5 in 64.8 cm	77 in 195.6	68 in 172.7 cm	6.0 in 15.2 cm	34.94 in 88.75 cm	14 in 35.6 cm	10 in 25.4 cm	8.25 in 21 cm	4 in 10.2 cm
30	7,000 lbs 3,175 kg	7 in 178 mm	135 kips 600 kN	270 kips 1200 kN	60 in 15.2 cm	52 in 132 cm	44 in 117.8 cm	10 in 25.4 cm	30.5 in 76.2 cm	83 in 21.1 cm	68 in 172.7 cm	6.0 in 15.2 cm	44.38 in 112.73 cm	14 in 35.6 cm	14 in 35.6 cm	8.25 in 21 cm	4 in 10.2 cm

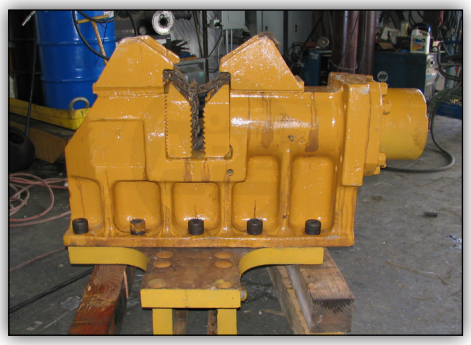




Attachment Accessories

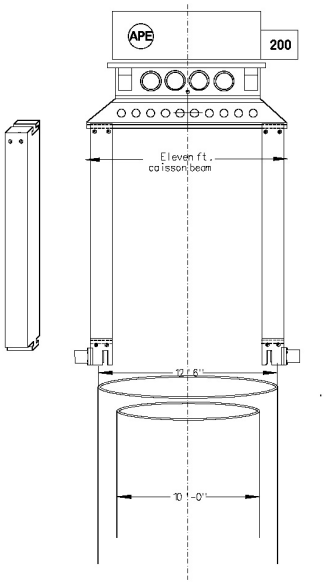
DRIVER/EXTRACTOR ACCESSORIES									
Specification	**Weight**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
90 Degree Turn Plate	600 lb 272 kg	12 in 30.48 cm	8 in 20.3 cm	8.25 in 21 cm	11 in 28 cm	16.5 in 42 cm	37 in 94 cm	3.5 in 8.9 cm	
4' extension	2,500 lb 1134 kg	37 in 94 cm	11 in 28 cm	8.25 in 21 cm	4.94 in 12.55 cm	48 in 122 cm	12 in 3-.5 cm	8 in 20.3 cm	
8' extension	4,000 lb 1,814 kg	37 in 94 cm	11 in 28 cm	8.25 in 21 cm	4.94 in 12.55 cm	96 in 243.8 cm	12 in 30.5 cm	8 in 20.3 cm	
Caisson Beam to Attachment Adapter	1,200 lb 680 kg	4.94 in 12.5 cm	8.00 in 20 cm	8.25 in 21 cm	11 in 28 cm	16.5 in 42 cm	37 in 94 cm	11.5 in 29.21 cm	14 in 35.56

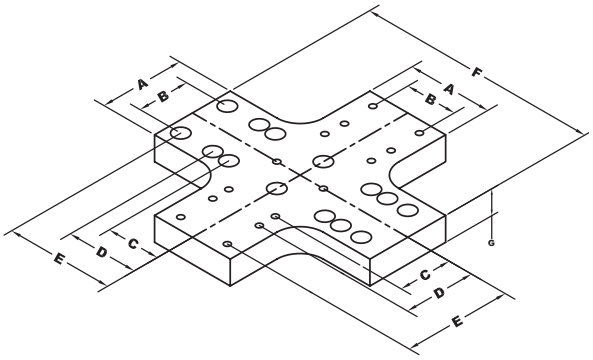
Caisson to sheet adapter with a 90 degree turn plate.



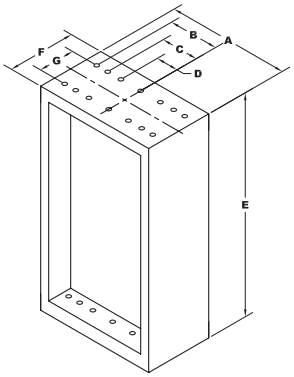
Hybrid extension called the California Stinger for tight working dimensions.

Attachment adapters used to allow the extraction of a casing with an extended rebar cage.

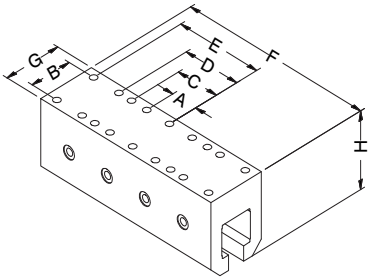




90 Degree Turn Plate.



4'&8' Extension.



Caisson beam to attachment adapter.

Note: All technical specifications are subject to change without notice.

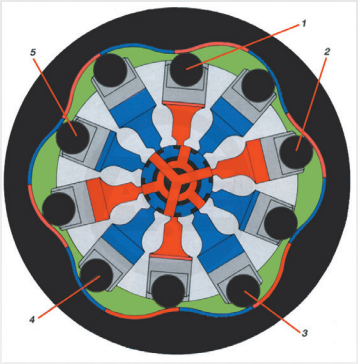
Top Drive Augers

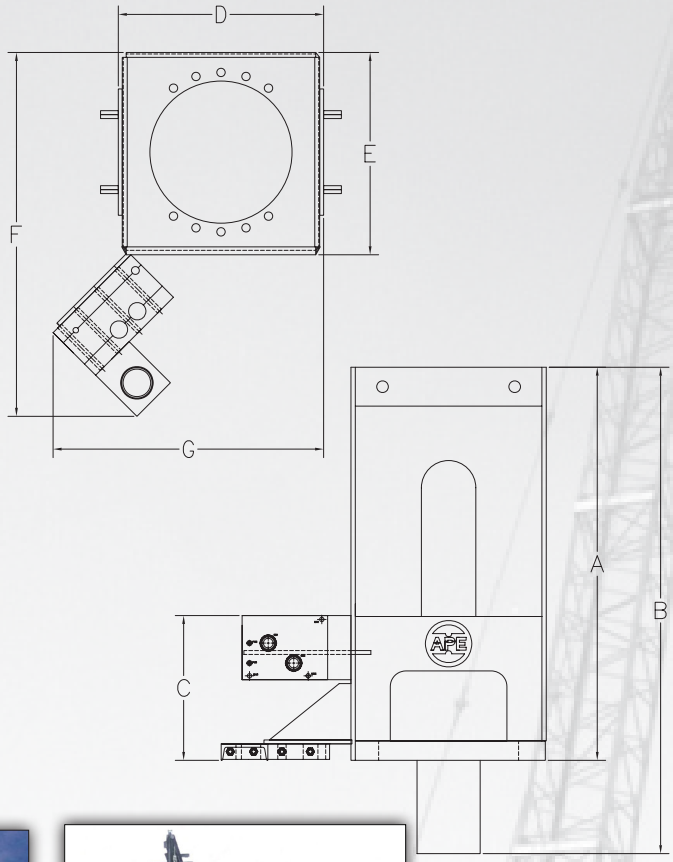
APE manufactures an improved version of the Poclain cam track hydraulic motor. We've added stronger bearings and a hollow shaft to create a powerful light weight drill motor. A 200 ton dynamic force lock nut retains the shaft between the upper and lower bearings, a 5 inch 300 pound flange easily accepts any type of connection. This APE motor withstands more dynamic axial loading than any other top drive drill on the market. The two-speed, direct fluid-to-torque motor needs no gearbox or troublesome planetary gear reductions. It is self-lubricating, light, compact.

APE and King Oil tools joined forces to develop a grout swivel that can handle 2,500 psi and last up to 3000 holes without service. The APE/King Oil swivel is the only one on the market designed to carry high-pressure grout. The swivel incorporates a removable inner wear tube and replacement seals for fast and inexpensive repair. The initial cost of the APE swivel is more, but with high reliability and less down time the contractor is going to be more cost effective going APE!

TOP DRIVE AUGER SPECIFICATIONS

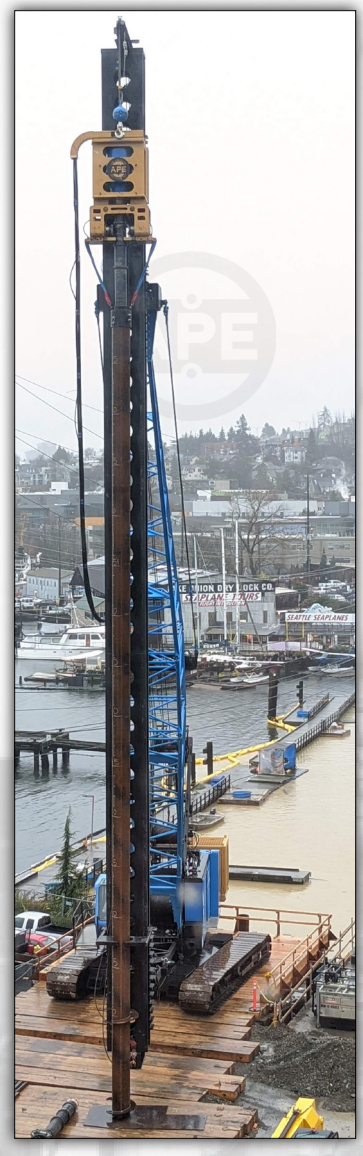
Type		20BB	50BB	75BB	80BB	100BB
Low Speed High Torque	Torque	4,844 per 1000psi 669.71 per 69 bar	9,688 per 1,000 psi 1,339.41 per 69 bar	12,150 per 1,000psi 1,679.8 per 69 bar	14,572 per 1000 psi 2,014.65 per 69 bar	18,182 per 1,000 psi 2,514 kgm per 69 bar
	Max Pressure	5,500 psi (379.21 bar)	5,800 psi (399.9 bar)	5,800 psi (399.9 bar)	5,500 psi (379.21 bar)	5,500 psi (379.21 bar)
	Rotation Speed	40 rpm	36 rpm	30 rpm	30 rpm	30 rpm
	Max Flow	66 @ 1.11 gal/rev 250 @ 4.2 lit/rev	120 @ 3.33 gal/rev 454 @ 12.6 lit/rev	120 @ 4.17 gal/rev 454 @ 15.79 lit/rev	125 @ 5 gal/rev 473 @ 18.93 lit/rev	140 @ 5 gal/rev 530 @ 18.93 lit/rev
	Max Horse Power	212 hp 158.09 kW	406 hp 302.75 kW	508 hp 378.72 kW	401 hp 299.03 kW	401 hp 299.03 kW
High Speed Low Torque	Torque	2,422 per 1000 psi 334.85 per 69 bar	4,844 per 1,000 psi 669.71 per 69 bar	6,075 per 1,000 psi 839.9 per 69 bar	7,266 per 1000 psi 1,004.56 per 69 bar	7,266 per 1000 psi 1,004.56 per 69 bar
	Max Pressure	5,500 psi 379.21 bar	4,570 psi 315.09 bar	5,800 psi 400 bar	4,500 psi 310.26 bar	4,500 psi 310.26 bar
	Rotation Speed	80 rpm	72 rpm	60 rpm	61 rpm	61 rpm
	Max Flow	66 @ 0.55 gal/rev 250 @ 2.08 lit/rev	120 @ 1.66 gal/rev 454 @ 6.28 lit/rev	120 @ 2.09 gal/rev 454 @ 7.91 lit/rev	125 @ 2.5 gal/ rev 473 @ 9.46 lit/rev	140 @ 2.5 gal / rev (530 @ 9.46 lit / rev)
	Max Horse Power	212 hp 158.09 kW	320 hp 238.62 kW	406 hp 302.75 kW	328 hp 244.59 kW	465 hp 348 kW
Crowd Force		77,000 lb 34,926.61 kg	150,000 lb 68,038.86 kg	150,000 lb 68,038.86 kg	150,000 lbs 68,038.86 kg	150,000 lbs 68,038.86 kg
Suspended Weight		4,310 lb 1,954.98 kg	5,700 lb 2,585.48 kg	5,700 lb 2585.48 kg	5,700 lb 2585.48 kg	5,630 lbs 2,554 kg
Length		25 in 63.5 cm	25 in 63.5 cm	25 in 63.5 cm	25 in 63.5 cm	25 in 63.5 cm
Width of Lead Section		26 in 66.04 cm	26 in 66.04 cm	26 in 66.04 cm	26 in 66.04 cm	26 in 66.04 cm
Shipping Width Over-all		48 in 121.92 cm	48 in 121.92 cm	48 in 121.92 cm	48 in 121.92 cm	48 in 121.92 cm
Height		61.5 in 156.21 cm	68 in 173 cm	68 in 173 cm	68 in 173 cm	68 in 173 cm
ID of Output Shaft		3 in 7.62 cm	3 in 7.62 cm	3 in 7.62 cm	3 in 7.62 cm	3 in 7.62 cm
ID of Rotary Joint		3 in 7.62 cm	3 in 7.62 cm	3 in 7.62 cm	3 in 7.62 cm	3 in 7.62 cm
API Adapters		3 inch, 4 inch	3 inch, 4 inch	3 inch, 4 inch	3 inch, 4 inch	3 inch, 4 inch
Lead Adapters		8 x 26, 8 x 32 Custom Available	8 x 26, 8 x 32 Custom Available	8 x 26, 8 x 32 Custom Available	8 x 26, 8 x 32 Custom Available	up to 54" leader





Radial Piston motor has highest volumetric and mechanical efficiencies with its outside Radial Piston design.

Oversized shaft bearings and locknut retention offers the highest vertical and radial loads in the industry.



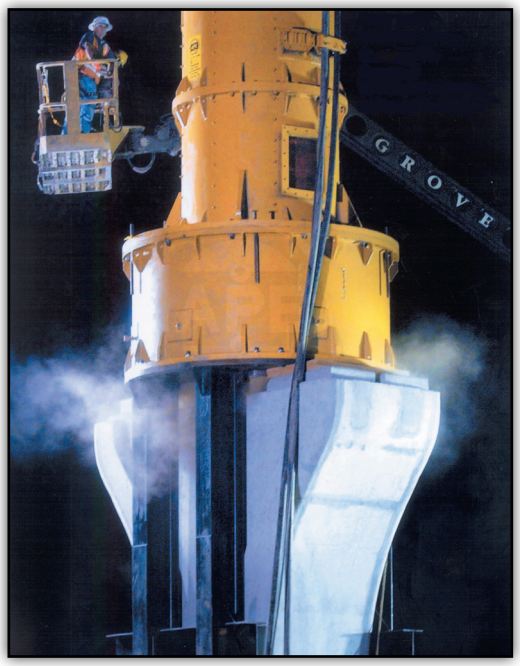
Hydraulic Impact Hammers (HIH)

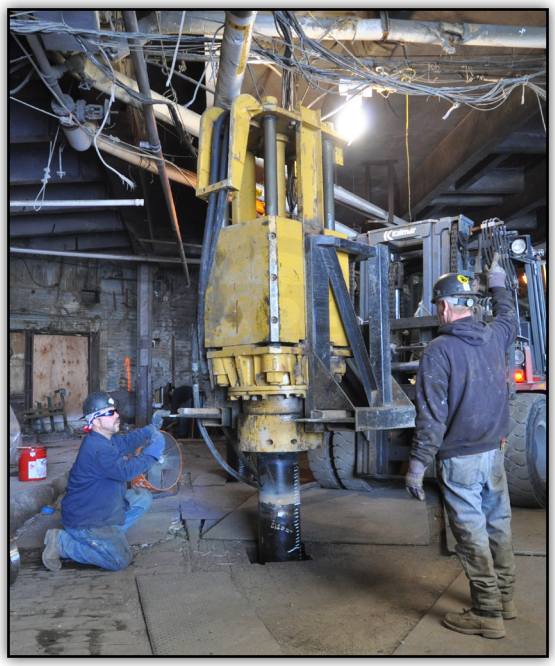
The APE 7.5A with a direct drive boot.

APE designed and built the first real low headroom hydraulic impact hammer in response to California's 1989 earthquake. The proceeding seismic retrofit repairs meant that thousands of piles, some over 100 feet long, had to be driven underneath existing bridges, demanding equipment that could drive the piles and minimize splicing. The job called for very short hammers. APE designed an impact hammer that features a Patented, US-006557649, hydraulic cylinder that connects through the center of the ram above the impact point. This technique greatly reduces the overall height of any comparable hammer by more than half. APE's low headroom technology has revolutionized pile driving, as contractors have discovered they can drive longer piles without splicing and welding. Since then, the APE hydraulic impact hammers have evolved into a full line of tools including the largest hydraulic impact hammer made in North America.

HYDRAULIC IMPACT HAMMER (HIH) SPECIFICATIONS

Type	Low Headroom					Standard				
Model	**4-2**	**5-2**	**6-2**	**7-3**	**8-3**	**8-4**	**10-4**	**15-4**	**15-4**	**60-4**
Ram Weight (lb/kg)	8,000 3,628.74	10,000 4,535.92	12,000 5,443.11	14,000 6,350.29	16,000 7,257.48	16,000 7,257.48	20,000 9,071.85	30,000 13,607.77	80,000 36,287.39	120,000 54,431.08
Rated Energy (ft-lb/kNm)	16,000 21.69	20,000 27.12	24,000 32.54	42,000 56.94	48,000 65.08	64,000 86.77	80,000 108.47	120,000 162.7	320,000 433.86	480,000 650.79
Stroke at Rated Energy (in/cm)	24 60.96	24 60.96	24 60.96	36 91.44	36 91.44	48 121.92	48 121.92	48 121.92	48 121.92	48 121.92
Blows Per Minute (Min-Max)	45-75	45-75	45-75	30-65	30-65	30-65	30-65	30-65	30-65	30-65
Weight w/o Insert (lb/kg)	13,700 6,214.22	15,200 6,894.6	17,200 7,801.79	20,500 9,298.64	22,500 10,205.83	23,800 10,795.5	27,800 12,609.87	42,000 19,050.88	varies	varies
Height (in/cm)	105 266.7	105 266.7	105 266.7	126 320.04	126 320.04	144 365.76	144 365.76	175 444.5	390 990.6	472 1,198.88
Standard U Lead Size	8"x26"	8"x26"	8"x26"	8"x26"	8"x26"	8"x26"	8"x26"	8"x32"	Offshore	Offshore





HYDRAULIC IMPACT HAMMER DASH 5 SPECIFICATIONS

Model	15-5	20-5	25-5	30-5
Ram Weight	30,000 lbs (13,607 kg)	40,000 lbs (18,144 kg)	50,000 lbs (22,680kg)	60,000 lbs (27,215 kg)
Hammer Weight	46,000 lbs (20,865 kg)	56,000 lbs (25,401 kg)	72,000 lbs (32,659 kg)	82,000 lbs (37,194 kg)
Ft-Lbs Energy	150,000 ft-lbs (203 kNm)	200,000 ft-lbs (271 kNm)	250,000 ft-lbs (339 kNm)	300,000 ft-lbs (407 kNm)
Stroke Height	60 inch (152.4 cm)	60 inch (152.4 cm)	60 inch (152.4 cm)	60 inch (152.4 cm)
Bare Hammer Length	234 inch (579.12 cm)	252 inch (640 cm)	270 inch (685.8 cm)	288 inch (731.5 cm)
Leads (Minimum)	37 inch (93.98 cm)	37 inch (93.98 cm)	37 inch (93.98 cm)	37 inch (93.98 cm)

Note: All technical specifications are subject to change without notice.

Power Units

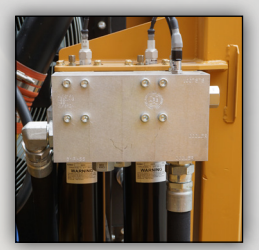
APE power units provide the contractor with the most advanced, tier 4 rated electronic engines with the highest possible horsepower. The hydraulic systems are simple and the valves are easy to access and understand. The hydraulic tanks are filled with vegetable hydraulic oil and each power unit comes with a built-in spare tank so that if a spill occurs, the crew can keep the job going by turning a 1/4 turn ball valve filling the main tank to a safe operating level.

APE power units have built in ladders to allow the pile crew to rig the unit safely. The muffler system is "hospital rated" for quiet operation. The control panel is made from stainless steel to prevent corrosion. All functions are located on the remote control pendant as well as on the main control panel for emergency back up with optional radio remote systems available.

Units come with "forward" and "reverse" flow capability, allowing the contractor to operate vibratory pile driver/extractors, auger drills, hydraulic impact hammers, winches, spotters, and other foundation equipment including oscillators and dredging equipment.

POWER UNIT SPECIFICATIONS

Model	14	33	50	124	275	375	456	475	580	755	765	800	950	1200
Engine Type	Kohler CH440	Caterpillar C1.7 Tier IV	Caterpillar C2.2 Tier IV	Caterpillar C4.4 Tier IV	Caterpillar C7 Tier III	Caterpillar C9 Tier IV	Caterpillar C9 Tier IV	Caterpillar C13 Tier IV	Caterpillar C15 Tier IV	Caterpiller C18 Tier IV	Caterpillar C18 Tier II	Caterpillar C18 Tier IV	Caterpillar C27 Tier IV	Caterpillar C32 Tier IV
Rated Horse Power	14 HP 10.5 kW	33.5 HP 25 kW	50 HP 37 kW	124 HP 92 kW	275 HP 205 kW	375 HP 280 kW	456 HP 340 kW	475 HP 354 kW	580 HP 432 kW	755 HP 563 kW	765 HP 570 kW	800 HP 596 kW	950 HP 708 kW	1,200 HP 895 kW
Rated Drive Pressure	0 - 3,500 psi 241 bar	0-2,500 psi 172 bar	0 - 2,500 psi 172 bar	0 - 2,500 psi 172 bar	0 - 5,076 psi 350 bar	0 - 5,076 psi 350 bar	0 - 5,076 psi 350 bar	0 - 5,800 psi 400 bar	0 - 5,076 psi 350 bar	0 - 5,076 psi 350 bar	0 - 4,500 psi 310 bar	0 - 5076 psi 350 bar	0 - 5076 psi 350 bar	0 - 5076 psi 350 bar
Drive Flow	6 gpm 22 lpm	20 gpm 76 lpm	32 gpm 121 lpm	60 gpm 227 lpm	85 gpm 322 lpm	120 gpm 454 lpm	150 gpm 568 lpm	150 gpm 568 lpm	225 gpm 852 lpm	241 gpm 912 lpm	220 gpm 833 lpm	242 gpm 916 lpm	278 gpm 1,052 lpm	294 gpm 1,113 lpm
Clamp Pressure	3,500 psi 241 bar	Consult factory	Consult Factory	Consult Factory	4,800 psi 331 bar	4,800 psi 331 bar	4,800 psi 331 bar	4,800 psi 331 bar	4,800 psi 331 bar	4,800 psi 331 bar	4,800 psi 331 bar	4,800 psi 331 bar	4,800 psi 331 bar	4,800 psi 331 bar
Clamp Flow	6 gpm 23 lpm	Consult Factory	Consult Factory	Consult Factory	10 gpm 38 lpm	10 gpm 38 lpm	10 gpm 38 lpm	10 gpm 38 lpm	10 gpm 38 lpm	10 gpm 38 lpm	10 gpm 38 lpm	10 gpm 38 lpm	10 gpm 38 lpm	10 gpm 38 lpm
Engine Speed	3,000 rpm	2,800 rpm	1,800 rpm	2,200 rpm	1,800 rpm	1,800 rpm	1,800 rpm	1,800 rpm	1,800 rpm	1,800 rpm	2,100 rpm	1,800 rpm	1,800 rpm	1,800 rpm
Weight	275 lb 125 kg	1,500 lbs 680 kg	2,900 lbs 1,315 kg	4,750 lb 2,155 kg	14,500 lb 6,577 kg	17,500 lb 7,938 kg	17,500 lb 7,938 kg	18,000 lb 8,165 kg	17,500 lb 7,938 kg	22,750 lbs 10,319 kg	19,000 lb 8,618 kg	22,750 lbs 10,319 kg	27,000 lb 12,247 kg	28,750 lb 13,040 kg
Length	24 in 61 cm	40 in 102 cm	69 in 175 cm	105 in 266 cm	140 in 355 cm	140 in 355 cm	140 in 355 cm	150 in 380 cm	165 in 419 cm	186 in 472 cm	152 in 385 cm	186 in 472 cm	186 in 472 cm	186 in 472 cm
Width	32 in 80 cm	36 in 92 cm	45 in 114 cm	45 in 114 cm	76 in 193 cm	76 in 193 cm	76 in 193 cm	80 in 201 cm	88 in 224 cm	96 in 244 cm	82 in 208 cm	96 in 244 cm	87 in 221 cm	87 in 221 cm
Height	42 in 107 cm	55 in 139 cm	50 in 137 cm	66 in 168 cm	81 in 206 cm	81 in 206 cm	81 in 206 cm	88 in 226 cm	97 in 247 cm	90 in 229 cm	94 in 239 cm	90 in 229 cm	103 in 261 cm	103 in 262 cm
Hydraulic Reservoir	20 gal 75 L	30 gal 114 L	55 gal 208 L	140 gal 530 L	300 gal 1,135 L	300 gal 1,135 L	300 gal 1,135 L	305 gal 1,155 L	568 gal 2,150 L	660 gal 2,498 L	450 gal 1,703 L	660 gal 2,498 L	760 gal 2,877 L	760 gal 2,877 L
Fuel Capacity	1.50 gal 5.68 L	12 gal 45 L	24 gal 91 L	75 gal 284 L	140 gal 530 L	140 gal 530 L	140 gal 530 L	117 gal 443 L	145 gal 553 L	178 gal 674 L	150 gal 568 L	178 gal 674 L	180 gal 681 L	180 gal 681 L

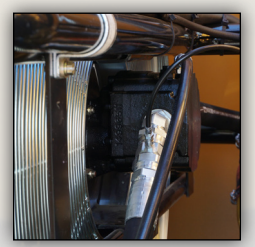


Kidney loop filtration and hydraulic cooling

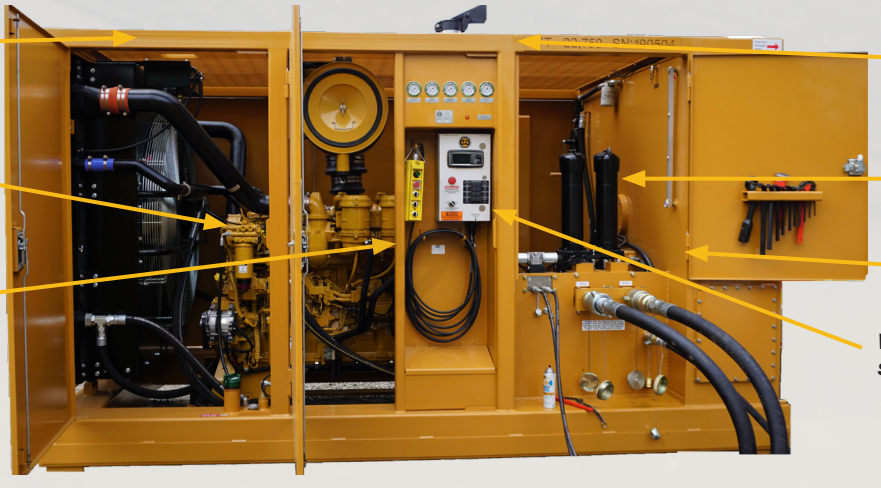
Custom ball valves for service

Complete tool set mounted in door panel

Control panel with telematics



Advance hydraulc controlled fan drive



Solid welded tubular frame

Models with CAT Tier II, III or IV engines

Remote control pendant unit sealed for protection against weather

Swivel lifting eye rated for 15,000 lbs for Models 275 to 475 and 24,000 for Models 580 to 1200

Optional high pressure filters to extend hydraulic oil life

Lift off hinges for easy door removal in the field

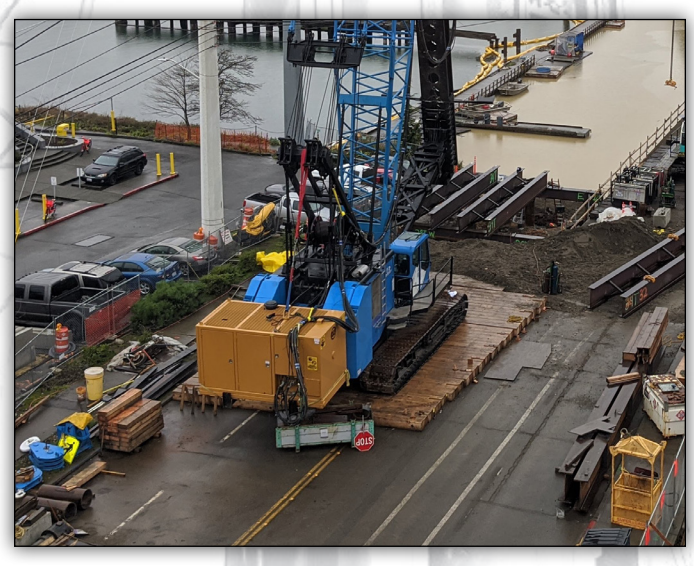
Weather sealed stainless steelhydraulicgaugesand control panel

CUSTOM BUILT MODEL 375 POWER UNIT MOUNTED THE BACK OF A CRANE EQUIPPED WITH A FRONT MOUNT DRIVE AUGER.

MODEL 350 POWER UNIT MOUNTED IN A HELICOPTER LIFT.

MODEL 1200 POWER UNIT GETTING LIFTED AND MOUNTED ON THE TOP DECK OF A 4000 TON CRANE BARGE.

MODEL 375 POWER UNIT MOUNTED ON THE BACK OF A CAT EXCAVATOR RUNNING A HYDRAULIC IMPACT HAMMER.



CUSTOM BUILT MODEL 580 POWER UNIT TIER IV RUNNING A 375K DRILL AT SEATTLE, WA FOR ORION.

CUSTOM BUILT MODEL 800 POWER UNIT TIER IV FOR MALCOM, MOUNTED AS A COUNTER WEIGHT ON THE BACK OF A LIEBHERR LR1300 CRANE.

Note: All technical specifications are subject to change without notice.

Diesel Hammers

APE maintains the largest fleet of single acting diesel hammers in the United States. We stock spare parts for all our Models from the D1 all the way to the D300. In addition, we stock replacement parts for Delmag diesel hammers for nearly every series. All our hammers and parts come with the longest warranty in the business.

SINGLE ACTING DIESEL HAMMER SPECIFICATIONS

	Maximum Energy		Minimum Energy		Ram Weight		Hammer Weight	
	ft-lbs	kNm	ft-lbs	kNm	lbs	tonnes	lbs	kg
D8-42	19,845	26.79	9,724	13.13	1,764	0.8	4,540	2,059
D12-42	29,768	40.19	14,884	20.09	2,646	1.2	6,890	3,125
D16-52	39,690	53.58	19,845	26.79	3,528	1.6	8,000	3,629
D19-52	47,132	63.63	23,566	31.81	4,189	1.9	8,400	3,810
D25-21	62,016	83.72	31,008	41.86	5,512	2.5	12,375	5,613
D25-52	62,016	83.72	31,008	41.86	5,512	2.5	12,569	5,700
D30-52	74,419	100.47	37,209	50.23	6,615	3	13,571	6,156
D36-26	89,303	120.56	44,651	60.28	7,938	3.6	17,150	7,779
D36-52	89,303	120.56	43,758	59.07	7,938	3.6	22,795	10,339
D46-52	114,109	154.05	55,913	75.48	10,143	4.6	25,000	11,340
D50-52	124,031	167.44	60,775	82.05	11,025	5	25,882	11,740
D62-52	153,799	207.63	76,899	103.81	13,671	6.2	29,100	13,200
D70-52	173,644	234.42	86,822	117.21	15,435	7	30,864	14,000
D80-42	198,450	267.91	127,008	171.46	17,640	8	38,434	17,433
D100-42	248,063	334.88	158,760	214.33	22,050	10	47,000	21,319
D125-42	310,078	418.61	198,450	267.91	27,563	12.5	62,000	28,123
D128-42	317,520	428.65	203,213	274.34	28,224	12.8	68,000	30,844
D138-42	342,326	462.14	219,089	295.77	30,429	13.8	70,295	31,885
D160-42	396,900	535.82	242,109	326.85	35,280	16	85,000	38,555
D180-42	446,513	602.79	272,373	367.70	39,690	18	92,000	41,730
D220-42	545,738	736.75	332,900	449.41	48,510	22	102,820	46,638
D260-42	644,963	870.70	393,427	531.13	57,330	26	118,830	53,900
D300-42	744,188	1,004.65	453,954	612.84	66,150	30	139,663	63,350

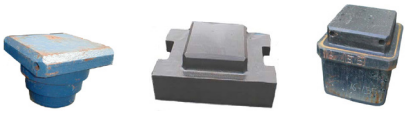
Drive Bases, Inserts and Helmets

APE Drive Caps, Inserts, Helmets, Followers and Pile Gates for Impact Hammers.

APE manufactures a full line of drive caps and inserts for any type of piling. APE drive caps and inserts are fully machined on all striking surfaces. This provides superior energy transfer to the pile and prevents premature wear of the hammer and decreases possible damage to the pile. APE drive caps accept inserts from all major manufacturers. However, for precision alignment we recommend using only APE made components. APE also offers machining services to upgrade your existing drive caps, inserts helmets and followers.

APE manufactures specialty items such as precision followers and pile gates design and engineered for specific driving needs. Anything that can be driven, APE can design an adapter to drive it. Precision alignment is one of the keys to a piles drivability and productivity. With our in house engineering, machining and fabrication capabilities you can get the production edge you need for your next job in less time.

Drive Bases and Inserts



Inserts

Striker Plates

APE striker plates are made twice as thick as our competition to prevent bending or cracks promoting consistent energy transfer. Each striker plate is fully machined on all surfaces and comes complete with drilled and tapped holes on both sides for easy loading and shipment.

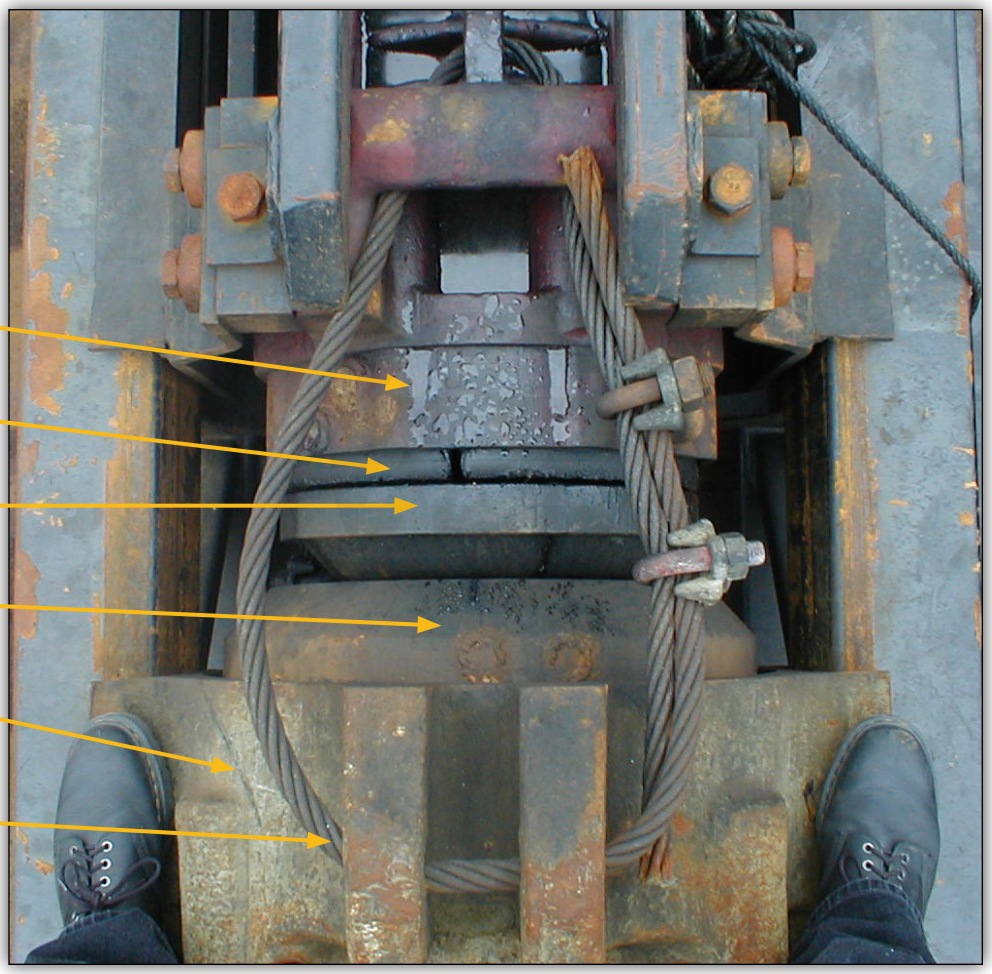
Conbest *Striker plate* *Aluminum*

Cushion Material

APE offers industry standard cushion material such as conbest, aluminum, and high density nylon cushion material. Pile cushion specifications available upon request.

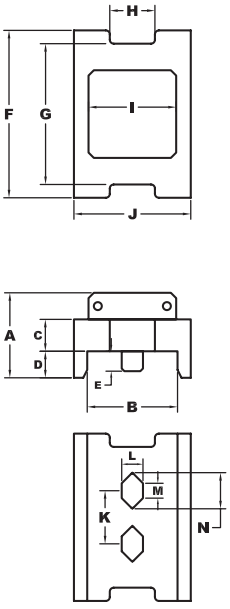
MC 904

Drive Cap Layout (Diesel Hammer)

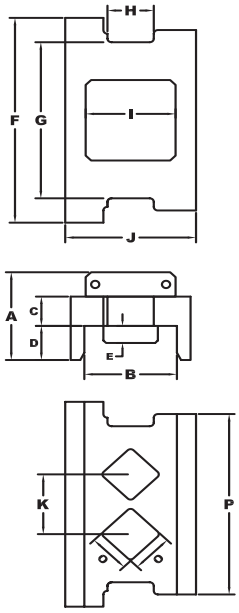


SHEET PILE INSERTS

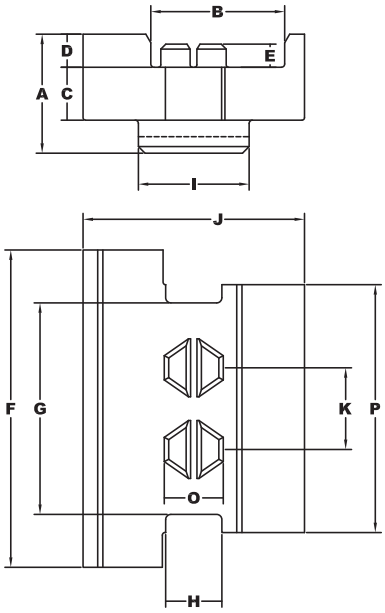
lbs / kg & in / mm	Wt#	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
DCS-1	1,700 771	16 406	17 432	6 152	5 127	3.75 95	31.5 800	25.5 648	8.5 216	16.5 419	22 559	10 254	4 102	2.9 76	6.8 172		
DCS-5	3,080 1,397	18 457	19.75 502	6 152	5 127	3.5 89	42 1,067	32 813	8.5 216	16.7 425	25.5 648	12.25 312				7.75 197	37.5 952
DCS-7	4,050 1,837	18 457	20.25 514	8 203	5 127	3.5 89	48 1220	32 813	8.5 216	16.7 425	33.5 850	12.35 314					37.5 952



SHEET PILE INSERT DCS-1



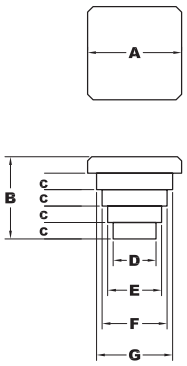
SHEET PILE INSERT DCS-5



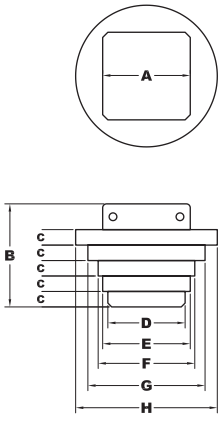
SHEET PILE INSERT DCS-7

PIPE INSERTS

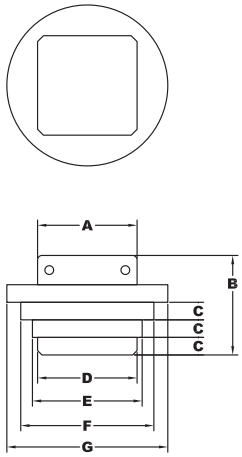
lbs / kg & in / mm	Wt#	A	B	C	D	E	F	G	H
16" (406 mm)	730 331	17 432	17.1 434	3 16	7.87 200	9.85 250	11.9 302	13.85 352	
24" (610 mm)	1,770 802	17 431	20 507	3 16	15 381	17 431	18.75 476	22.5 577	26 660
30" (762 mm)	2,340 1,061	17 431	18.5 470	2.5 64	11 279	18 457	25 635	31.9 813	



16" PIPE INSERT



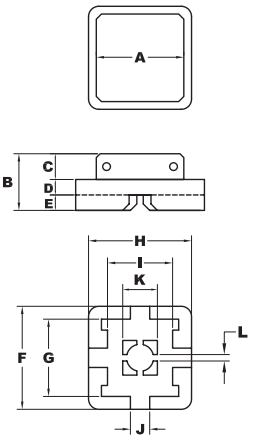
24" PIPE INSERT



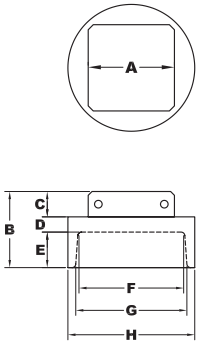
30" PIPE INSERT

H-BEAM INSERTS

lbs / kg & in / mm	Wt#	A	B	C	D	E	F	G	H	I	J	K	L
12" (305 mm) Round	1,060 481	17 432	20 508	5 127	3 76	12 305	17 432	17.7 449	26.5 675				
14" (356 mm) Round	1,220 553	25 635	20 508	5 127	3 76	12 305	21 533	21.65 550	26.6 676				
12" & 14" (305 & 356 mm) Waffle	850 386	17 432	11 279	5 127	3 76	3 76	20 508	15 381	20 508	12.65 321	3.75 95	6.75 171	1.25 32
16" & 18" (406 & 457 mm) Waffle	2,140 971	17 432	17 432	5 127	6 152	6 152	26 660	19 482	26 660	19 482	2.5 64	13 330	2.5 64



H-BEAMINSERT-WAFFLE

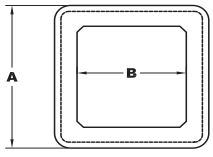


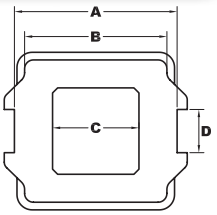
H-BEAMINSERT-ROUND

BOX INSERTS

lbs / kg & in / mm	Wt#	A	B	C	D	E	F	G	H
*10" (254 mm)	1,480 671	20 508	17 432	27 685	6 152	16 406	11.5 293	14.5 369	
*12" (305 mm)	1,610 730	20 508	17 432	27 685	6 152	16 406	13.5 343	16.5 419	
*14" (356 mm)	1,560 708	20 508	17 432	27 686	6 152	16 406	15 381	20 508	
*16" (406 mm)	1,810 821	22 359	17 43 2	27 686	6 152	16 406	17 432	20 508	
*18" (457 mm)	2,360 1,070	24 610	17 432	29 736	8 203	16 406	19 482	22 559	
*20" (508 mm)	2,840 1,288	26 660	24 610	17 432	8.5 216	29 736	8 203	16 406	21.5 546
*24" (609 mm)	3,500 1,587	32 813	31 790	17 432	8.5 215	37 940	12 305	20 508	25 636

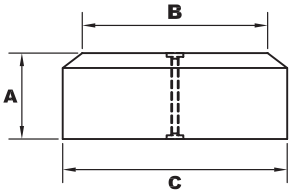
*NOTE: * Maximum Pile Cushion Size*



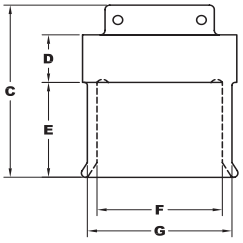


STRIKER PLATES

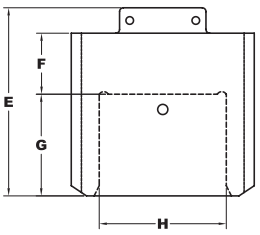
lbs / kg & in / mm	Wt#	A	B	C
17.75" (450 mm)	440 199	6 152	14 356	17.75 451
22.5" (572 mm)	650 295	6 152	18 457	22.5 572
25" (635 mm)	1,036 470	8 203	19 485	25.0 635
30" (762 mm)	1,400 635	12 305	29 737	30 762



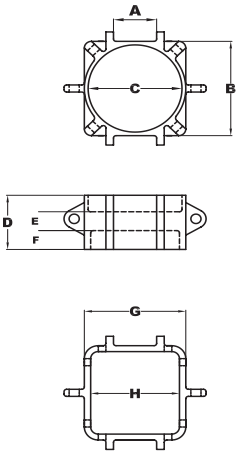
STRIKERPLATE



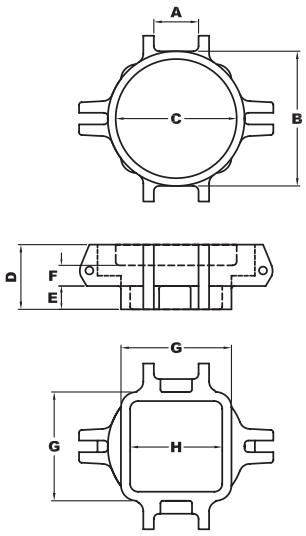
10"-18" BOX INSERT



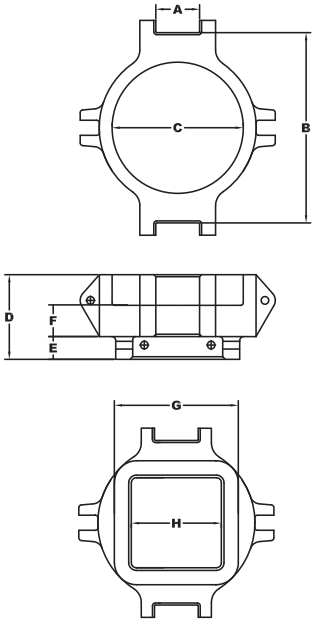
20"-24 BOX INSERT



20" DRIVE CAP BASE



26" DRIVE CAP BASE



32" 37" & 43" DRIVE CAP BASE

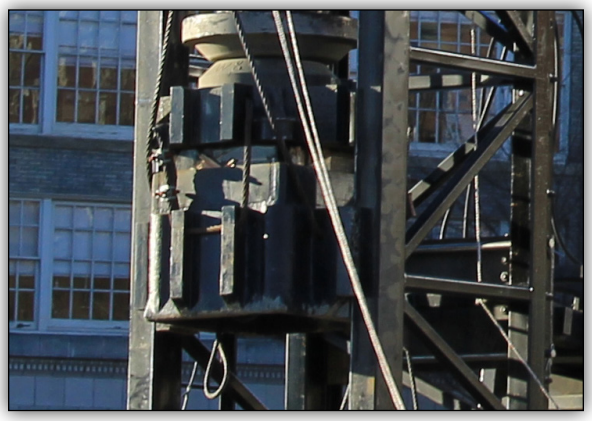
DRIVE

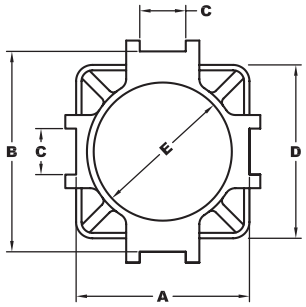
lbs / kg & in / mm	Wt#	A	B
20" - 4"	750	8.5	20
(508 - 102 mm)	340	216	508
26" - 6"	1,270	8.5	26
(660 - 152 mm)	576	216	660
26" - 9"	1,350	8.5	26
(660 - 229 mm)	612	216	660
32" - 6"	2,270	8.5	32
(813 - 152 mm)	1,030	216	813
32" - 9"	2,420	8.5	32
(813 - 229 mm)	1,097	216	813
37" - 6"	3,020	8.5	37
(940 - 152 mm)	1,370	216	940
37" - 9"	2,790	8.5	37
(940 - 229 mm)	1,266	216	940
43" - 6"	3,400	8.5	43
(1,092 - 152 mm)	1,542	216	1092
43" - 9"	4,070	8.5	43
(1,092 - 229 mm)	1,846	216	1092

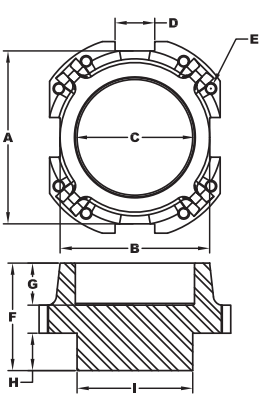
TWO PIECE BOX HELMETS

lbs / kg & in / mm	Wt#	A	B	C	D	E	F	G	H	I	J	K	L	M
*24"	6,350	37	32	25.5	8.5	2	23	9	8	24.75	32	37	25.5	24
(610 mm)	2,880	940	813	648	216	51	584	229	203	629	813	940	648	610
*30"	8,380	43	42.5	30.5	8.5	2	23	9	8	30.75	37	43	31.5	24
(762 mm)	3,801	1092	1080	775	216	51	584	229	203	781	940	1092	800	610
*36"	12,329	54	43	30.5	8.5	2	23	9	8	36.75	43	54	37.5	24
(914 mm)	5,592	1372	1092	775	216	51	584	229	203	933	1092	1372	953	610

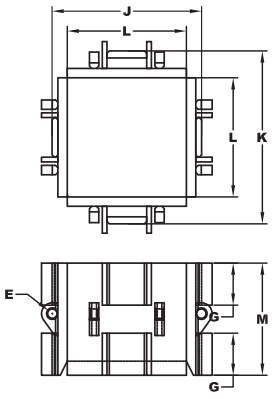
*NOTE: * Maximum Pile Cushion Size*

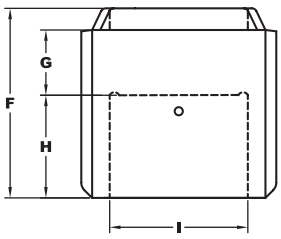






TWO PIECE BOX HELMET





ONE PIECE BOX HELMET

PIPE HELMETS

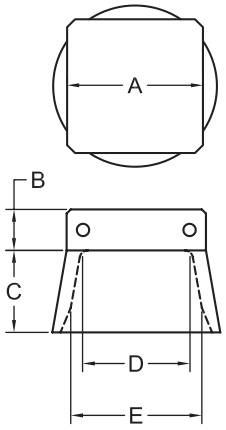
PIPE HELMETS	Wt#	A	B	C	D	E	F	G	H	I
32/37" - 25.5"	3,400	17	37	8.5	25.5	24	12.5	6	3	2.9
(813/940 - 648 mm)	1,542	432	940	216	648	610	318	152	16	73
37/43" - 25.5"	6,660	43	37	8.5	25.5	28.5	16.5	6	3	3
(940/1092 - 648 mm)	3,021	1,092	940	216	648	724	419	152	16	16
37/43" - 30.5"	6,560	43	37	8.5	30.5	28.5	16.5	6	3	3
(940/1092 - 775 mm)	2,976	1,092	940	216	775	724	419	152	16	16
54" - 25.5"	8,910	54		8.5	25.5	25	16	8		3
(1,372 - 648 mm)	4,041	1,372		216	648	635	406	203		76
54" - 30.5"	8,810	54		8.5	30.5	25	16	8		3
(1,372 - 775 mm)	3,996	1,371		216	775	635	406	203		76

CAP BASES

	C	D	E	F	G	H
	18.25 464	11.5 292	4 102	4 102	20 508	17.5 445
	23 584	14.5 367	4.5 114	4 101	21 533	17.5 445
	23 584	17.5 443	4.5 114	4 101	21 533	17.5 445
	25.5 648	16.5 419	4.5 114	6 153	24 612	17.5 445
	25.5 648	19.5 495	4.5 114	6 153	24 612	17.5 445
	25.5 648	18.5 470	4.5 114	8 203	24 612	17.5 445
	25.5 648	19.5 495	4.5 114	6 153	24 612	17.5 445
	25.5 648	18.5 470	4.5 114	8 203	24 612	17.5 445
	30.5 775	21.5 545	4.5 114	8 203	24 612	17.5 445

WOOD INSERTS

lbs / kg & in / mm	Wt#	A	B	C	D	E
17" **(432 mm)**	893 446	20 508	5 127	11.25 286	15.5 394	17 432
19" **(483 mm)**	1,175 533	19 484	5 127	18 457	16 406	19 482



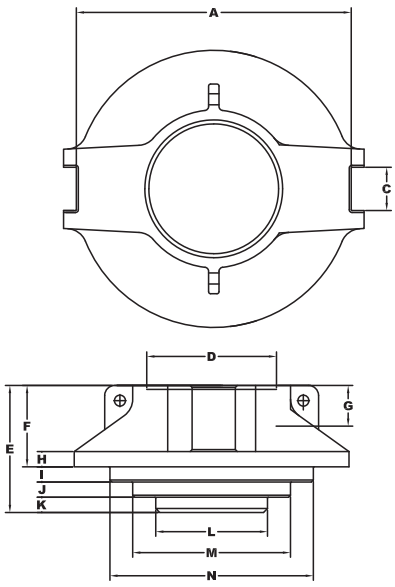
WOODINSERT

ONE PIECE BOX HELMETS

lbs / kg & in / mm	Wt#	A	B	C	D	E	F	G	H	I
***24"** **(610 mm)**	5,818 2,639	32 813	37 940	8.5 216	32 813	25.5 648	35 889	12 305	19 483	25.5 645
***30"** **(762 mm)**	6,195 2,810	37 940	43 1092	8.5 216	36 914	25.5 648	42 1,067	12 305	24 610	31.5 800

NOTE: * Maximum Pile Cushion Size

	J	K	L	M	N	O
	2.9 73	2.75 70	17.5 445	19.6 499	26.1 663	32 813
	3 16	3 16	18.75 476	22 559	27.5 699	33.5 851
	3 16	3 16	18.75 476	22 559	27.5 699	33.5 851
	3 76	3 76	22 558	31 788	40 1,016	
	3 76	3 76	22 558	31 788	40 1,016	



54" PIPE HELMET

37" TO 43" PIPE HELMET

32" TO 37" PIPE HELMET

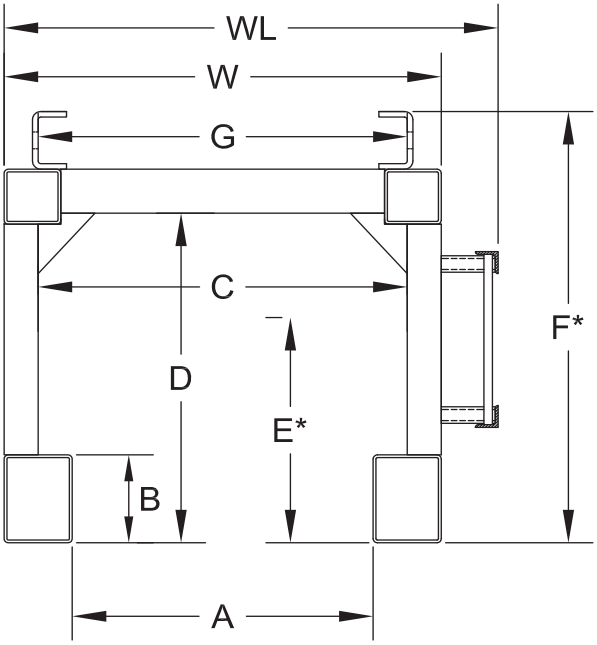
Leads Setups

APE manufactures U-type (Box) and Front-Riding (European) style leads. APE leads are pin connected, eliminating the need for nuts and bolts that can come loose or require changing after each set up. All fixed lead systems are analyzed for stresses by APE engineers. Many applications are available including fixed extended, telescoping, fixed under hung and swinging applications.

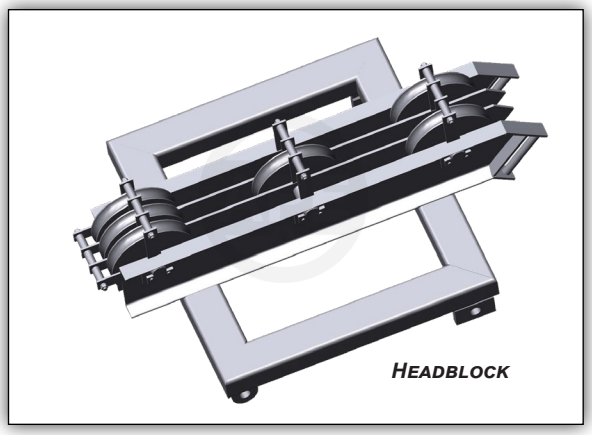
BOX LEAD DIMENSIONS

Key	8 x 21	8 x 26	8 x 32	8 x 37	8 x 43	10 x 54
A	21.50 in 54.61 cm	26.50 in 67.31 cm	32.50 in 82.55 cm	37.50 in 95.25 cm	43.50 in 110.5 cm	54.50 in 138.43 cm
B	8.00 in 20.32 cm	8.00 in 20.32 cm	8.00 in 20.32 cm	8.00 in 20.32 cm	8.00 in 20.32 cm	10.00 in 25.4 cm
C	27.50 in 69.85 cm	32.50 in 82.55 cm	38.50 in 97.79 cm	43.50 in 110.5 cm	49.50 in 125.73 cm	62.50 in 158.75 cm
D	30.00 in 76.2 cm	30.00 in 76.2 cm	34.00 in 86.36 cm	42.00 in 106.68 cm	46.00 in 116.84 cm	48.00 in 121.92 cm
E	15.29 in 38.84 cm	15.29 in 38.84 cm	16.94 in 43.03 cm	20.22 in 51.36 cm	21.87 in 55.55 cm	28.00 in 71.12 cm
E*	22.10 in 56.13 cm	22.10 in 56.13 cm	24.50 in 62.23 cm	29.29 in 74.40 cm	31.69 in 80.49 cm	N/A
F	34.00 in 86.36 cm	34.00 in 86.36 cm	38.00 in 96.52 cm	46.00 in 116.84 cm	50.00 in 127 cm	54.00 in 137.16 cm
F*	39.25 in 99.70 cm	39.25 in 99.70 cm	43.25 in 109.86 cm	51.25 in 130.18 cm	55.25 in 140.33 cm	N/A
G	27.50 in 69.85 cm	32.50 in 82.55 cm	38.50 in 97.79 cm	43.50 in 110.49 cm	49.50 in 125.73 cm	N/A
W	33.50 in 85.09 cm	38.50 in 97.79 cm	44.50 in 113.03 cm	49.50 in 125.73 cm	55.50 in 140.97 cm	74.50 in 189.23 cm
WL	38.50 in 97.79 cm	43.50 in 110.5 cm	49.50 in 125.73 cm	54.50 in 138.43 cm	60.50 in 153.67 cm	79.50 in 201.93 cm
Weight	130 lb/ft (193.19 kg/m)	135 lb/ft (200.83 kg/m)	141 lb/ft (209.75 kg/m)	146 lb/tf (217.20 kg/m)	152 lb/ft (226.15 kg/m)	280 lb/ft (416.59 kg/m)

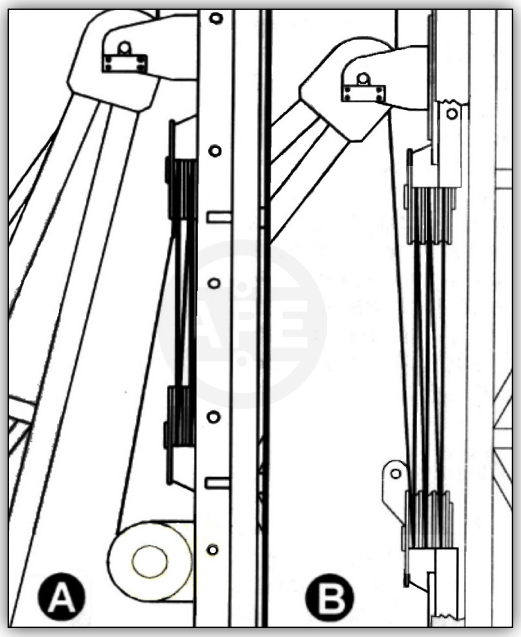
Dimension with pin-up rail
Pinup rail weight per ft. = 15 lbs



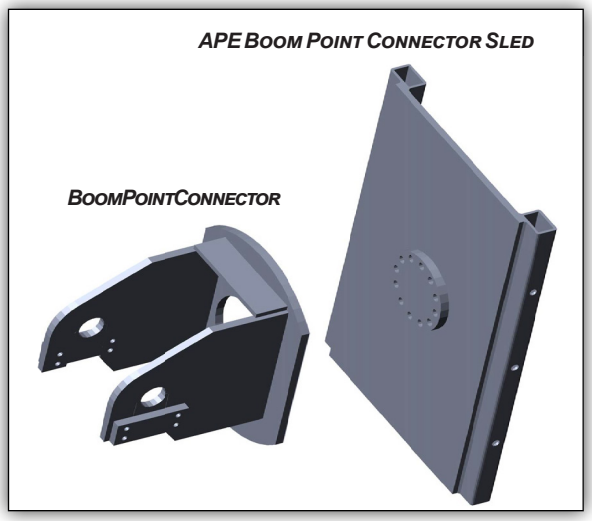
M - Average weight per foot for 100' package



Headblock

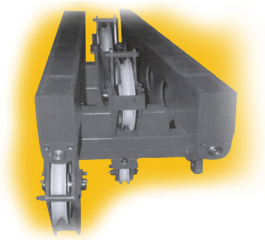


Telescoping Lead System



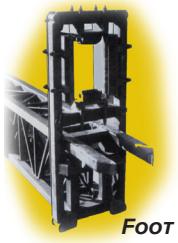
FRONT RIDING LEAD SPECIFICATIONS

DIMENSIONS	ST-70	ST-75	ST-100	ST-150	ST-190
A in/cm	28.5 in 72.4 cm	28.5 in 72.4 cm	28.5 in 72.4 cm	28.5 in 72.4 cm	37 in 91.4 cm
B in/cm	3 in 7.62 cm	3 in 7.62 cm	3 in 7.62 cm	5 in 12.7 cm	5 in 12.7 cm
C in/cm	36 in 91.44 cm	36 in 91.44 cm	36 in 91.44 cm	36 in 91.44 cm	45 in 114.4 cm
Average Weight lb/kg	70 lb 34.75 kg	75 lb 34.01 kg	100 lbs 45.35 kg	150 lb 68.02 kg	190 lb 86.16 kg

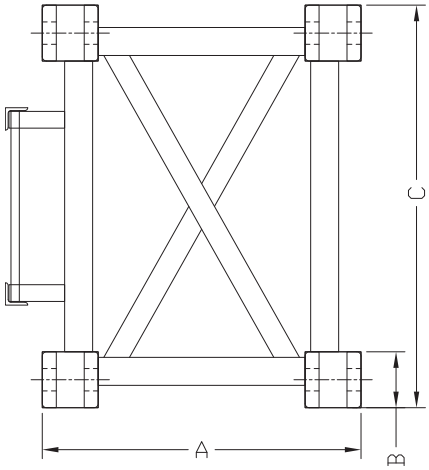


Headblock 2 or 3 line

Stabber



Foot Yoke



OFFSHORE LEADS

Lead Size	Min pile size	Max pile size	Overall length	Overall width
43”	16 in 40.6 cm	38 in 96.5 cm	39 ft 11.8 m	61 in 155 cm
54”	18 in 45.7 cm	48 in 122 cm	39 ft 11.8 m	72 in 183 cm
78”	32 in 81.3 cm	94 in 240 cm	39 ft 11.8 m	90 in 228.6 cm

Offshore leaders for up to 12 ft (3.65 m) piles are available

APE offshore leaders are designed to give the operator the best available control during the driving of both vertical and batter (raked) piles. Pin-on offshore bells allow the greatest versatility for a standard lead section, Drive helmets and pin on drive bells are available for both pipe and concrete piles.

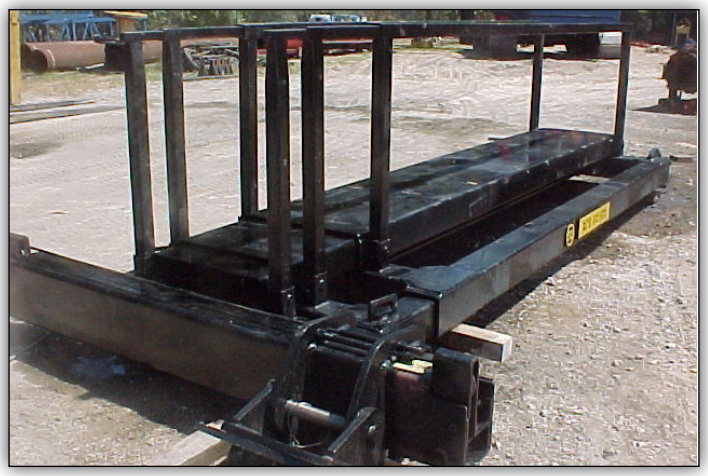
Spotter Setups

SPOTTERS

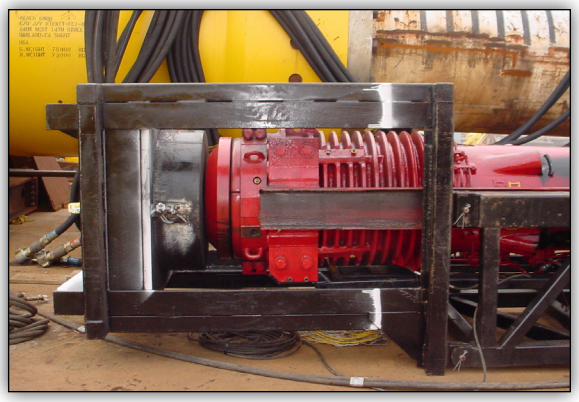
	APE 100	APE 150	APE 225	J&M 368
Hydraulic Extension	10 ft / 3.05 m	20 ft / 6.10 m	20 ft / 6.10 m	30 ft / 9.14 m
Manual Extension	10 ft / 3.05 m	0 ft / 0 m	0 ft / 0 m	0 ft / 0 m
Extend Force	18,000 lb / 8165 kg	28,000 lb / 12700 kg	31,500 lb / 14288 kg	60,000 lb / 27216 kg
Retract Force	19,000 lb / 8618 kg	32,000 lb / 14515 kg	23,500 lb / 10660 kg	62,000 lb / 28123 kg
Collapsed Length*	17 ft / 5.18 m	17 ft / 5.18 m	21.5 ft / 6.55 m	26 ft / 7.92 m
L/R Travel Extended	6 ft / 1.83 m	35 ft / 10.67 m	41.5 ft / 12.65 m	52 ft / 15.85 m
L/R Force Extended	7,200 lb / 3266 kg	12,000 lb / 5443 kg	28,000 lb / 12700 kg	28,000 lb / 12700 kg
L/R Travel Retracted	6 ft / 1.83 m	15 ft / 4.57 m	20 ft / 6.10 m	23 ft / 7.01 m
L/R Force Retracted	7,200 lb / 3266 kg	25,900 lb / 11748 kg	64,000 lb / 29030 kg	64,000 lb / 29030 kg
Maximum Width	8 ft / 2.44 m	8 ft / 2.44 m	9 ft / 2.74 m	10 ft / 3.05 m
Operating Pressure	2,500 psi	2,500 psi	2,500 psi	2,500 psi
Weight	7,000 lb / 3175 kg	8,500 lb / 3856 kg	10,000 lb / 4536 kg	31,100 lb / 31100 kg
Power Lead Rotation	Optional	Optional	Optional	Optional

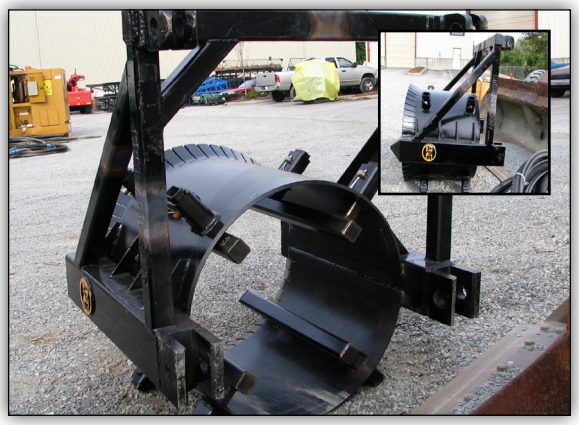
*** Distance from rear pivot to back of leads**

APE hydraulic spotters link the base of the leader to the house of a crane stabilizing the driving system for more accurate pile placement increasing productivity. Standard two axis, custom three axis spotters and stiff legs are available. Parallelogram spotters for composite batter control. Fixed and live spotter connections including chain driven systems With APE's design and engineering staff, APE can provide the best solution for your leader system needs.



Bottom Drives

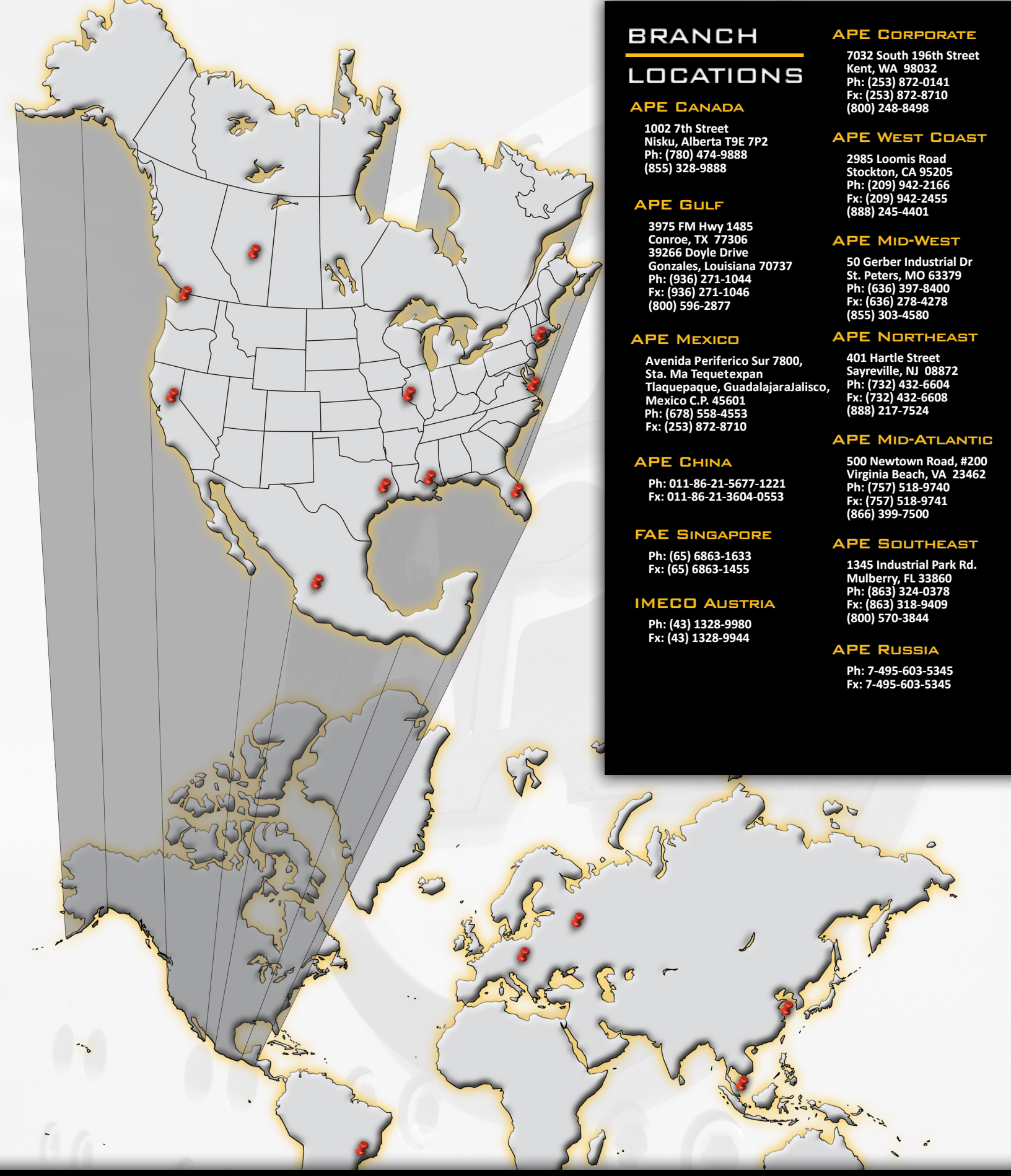




APE Bottom Drives and pin-on offshore bells are designed reduce the overall weight of a driving helmet by utilizing a mid or top section of standard lead. Bottom drive bells can be made for multiple pile diameters greatly increasing its versatility.

BOTTOM DRIVE SYSTEMS/PIN ON OFFSHORE BELLS			
Standard leader size	**Minimum pile size**	**Maximum pile size**	**Overall length**
8 x 32 in 20.3 x 81.3 cm	16 in 40.6 cm	42 in 106.7 cm	6 ft 1.8 m
8 x 37 in 20.3 x 94 cm	60 in 152.4 cm	122 in 310 cm	8 ft 2.44 m
8 x 43 in 20.3 x 109.2 cm	32 in 81.3 cm	72 in 182.8 cm	8 ft 2.44 m
10 x 54 in 20.3 x 137.2 cm	36 in 81.3 cm	122 in 310 cm	12 ft 3.66 m
Bottom Drives for up to 12' (3.65 m) piles available including extended boots for batter/ raked piles.			

Typical Mid Lead Section



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