

# Diesel Hammers and Leads

11/2013







**BAUER-Pileco**

Pileco joined the BAUER Group in 2005. To better align itself with Bauer Maschinen and to harness its global brand, Pileco as a company is now Bauer-Pileco. Bauer-Pileco is a leading global provider of foundation equipment and support to the foundation construction industry. Bauer-Pileco has offices throughout the United States. Recognized for its technological advances and innovation, Bauer-Pileco represents Bauer Maschinen across North America.

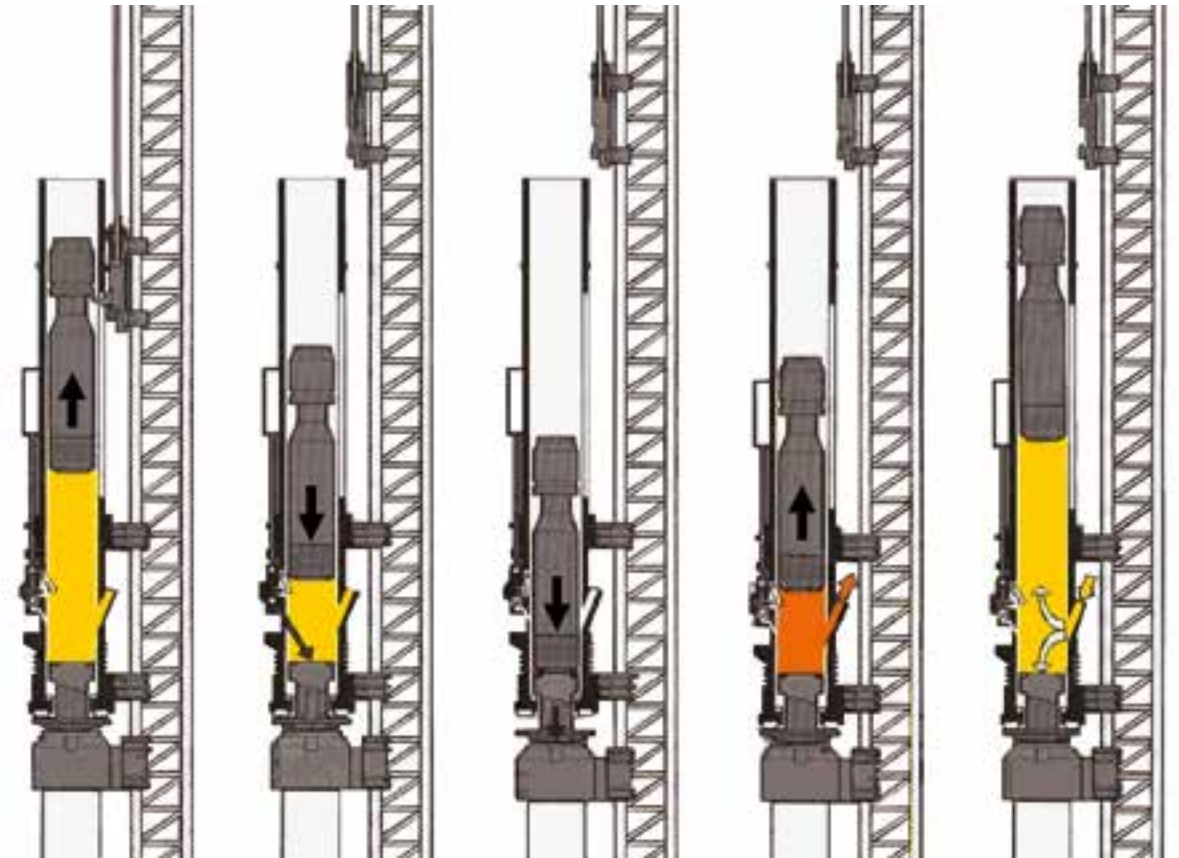


*"Follow Our Lead To A Solid Foundation"*

**Pileco**

Having already established a well recognized brand and garnered a reputation second to none in the pile driving equipment and service industry, the Pileco name is one of many brands of the BAUER Group. Pileco brings over 45 years of experience with exceptional service, rentals, and technical support for a superior fleet of products including pile driving equipment, piling tool manufacturing, diesel hammers, hydraulic hammers, vibratory hammers, and lead systems.

**Operating a Diesel Hammer**



**Raising the piston (starting)**

For starting the diesel hammer, the piston (ram) is raised by means of a mechanical tripping device and is automatically released at a given height.

**Injection of diesel fuel and compression**

As the piston falls through the cylinders, it activates a lever on the back of the fuel pump, which injects a measured amount of diesel fuel on to the top of the impact block. Shortly after this, the exhaust ports are closed.

**Impact and atomization**

Compressing all the air/fuel between the exhaust ports and the top of the impact block, the piston continues falling until it strikes the top of the impact block. The heat generated by the compression of air, in the presence of atomized fuel, causes the explosion of the fuel, throwing the piston upwards and forcing the impact block downwards against the pile.

**Exhaust**

While moving upwards, the piston will pass and open the exhaust ports. Exhaust gases will escape and the pressure in the cylinder will equalize.

**Scavenging**

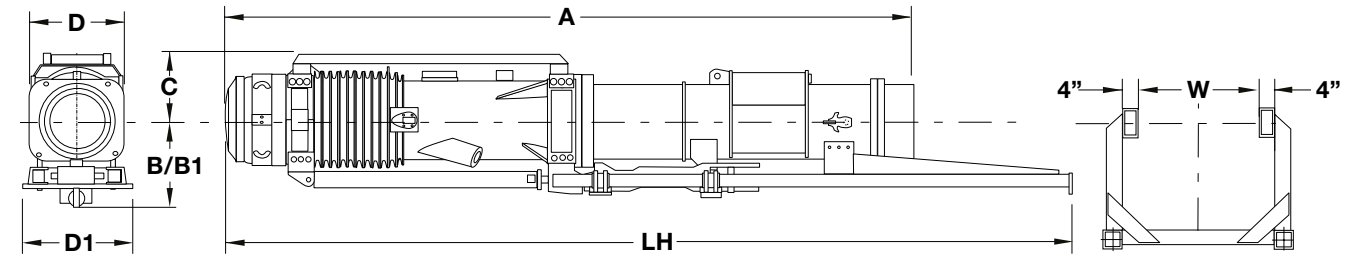
The piston continues its upward momentum, which draws in fresh air, cools the cylinders, and releases the pump lever. The pump lever returns to its starting position, so that the pump will again be charged with fuel. Gravity stops the upward motion and it starts falling through the cylinders once again.



# Diesel Hammer - Specifications



# Standard Units



- 1) Depends on fuel pump setting, soil type, and pile type.
- 2) Potential energy calculated by multiplying piston weight and stroke. The stroke of the ram is a result of the blow rate and does not consider any pile driving conditions, neither loss by compression or friction.
- 3) Consumption and weights are approximate, weight of guiding depends on type and size of diesel hammer guiding.

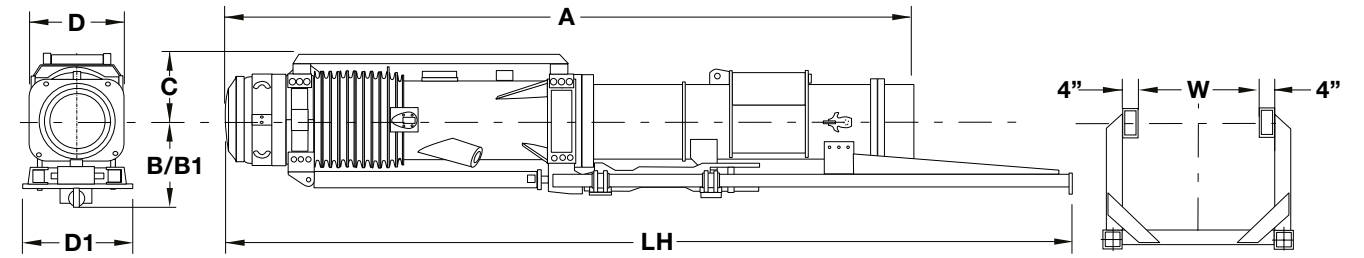
All data are subject to change without notification.

Model	D6-32	D8-22	D12-42	D19-42	D25-32	D30-32	D36-32	D46-32	D62-22	D80-23	D100-13	D125-32	D138-32	D160-32	D180-32	D225-22	D250-22	D280-22	D800-12	Model	
<b>Approx. Piston Weight (lbs.)</b>	1,320	1,770	2,820	4,015	5,515	6,615	7,940	10,145	13,670	17,640	22,045	27,560	30,420	35,275	39,680	49,612	55,050	61,729	176,370	<b>Approx. Piston Weight (lbs.)</b>	
<b>Approx. Anvil Weight (lbs.)</b>	407	407	660	779	1,456	1,456	2,354	2,354	2,420	4,620	4,620	6,688	6,688	9,581	9,581	14,036	14,036	14,036	-	<b>Approx. Anvil Weight (lbs.)</b>	
<b>Blows per minute<sup>1</sup></b>																					<b>Blows per minute<sup>1</sup></b>
Minimum (1/min)	39	37	37	37	37	37	37	37	35	36	36	36	36	36	36	36	36	36	36	36	Minimum (1/min)
Maximum (1/min)	52	52	52	52	52	52	52	52	50	45	45	45	45	46	46	50	50	50	45	45	Maximum (1/min)
<b>Energy per blow<sup>2</sup> (adjustable)</b>																					<b>Energy per blow<sup>2</sup> (adjustable)</b>
Maximum (ft.lbs.)	12,570	18,760	29,840	42,480	58,300	69,925	83,950	107,280	161,640	197,150	246,390	308,025	340,000	394,250	443,500	564,970	631,351	688,145	1,965,603	1,965,603	Maximum (ft.lbs.)
Minimum (ft.lbs.)	7,090	9,480	15,000	21,510	29,510	35,400	42,500	54,320	79,200	126,180	157,685	197,135	217,600	241,470	271,640	292,811	331,903	357,718	1,272,295	1,272,295	Minimum (ft.lbs.)
<b>Consumption<sup>3</sup></b>																					<b>Consumption<sup>3</sup></b>
Diesel Fuel (gal./hr.)	0.96	1.00	1.20	2.00	2.11	2.64	3.04	4.23	5.28	6.60	7.93	9.50	10.20	11.90	13.10	16.90	19.00	21.13	56.8	56.8	Diesel Fuel (gal./hr.)
Lubrication Oil (gal./hr.)	0.06	0.13	0.13	0.16	0.26	0.26	0.39	0.39	0.53	0.68	0.68	0.95	0.95	1.32	1.32	1.53	1.53	1.53	2.25	2.25	Lubrication Oil (gal./hr.)
<b>Capacity</b>																					<b>Capacity</b>
Diesel Fuel (gal.)	4.9	5.3	6.3	20.0	17.7	17.7	23.5	23.5	25.8	40.9	40.9	50.0	50.0	63.0	63.0	121.0	12.0	121.5	462	462	Diesel Fuel (gal.)
Lubrication Oil (gal.)	1.3	1.6	1.7	5.0	5.0	5.0	4.5	4.5	8.3	8.4	8.4	15.8	15.8	21.1	21.1	26.4	26.0	26.4	18.1	18.1	Lubrication Oil (gal.)
<b>Weight<sup>3</sup></b>																					<b>Weight<sup>3</sup></b>
Hammer (lbs.)	3,570	4,000	5,730	8,365	12,370	13,472	17,375	19,580	27,077	37,275	44,894	53,616	57,360	68,785	75,700	100,328	106,467	113,538	-	-	Hammer (lbs.)
Hammer, Standard Operating (lbs.)	4,920	5,350	7,100	9,700	14,800	15,900	19,900	22,100	29,300	41,200	48,800	60,250	64,000	74,500	82,600	103,195	110,431	-	-	-	Hammer, Standard Operating (lbs.)
<b>Dimensions</b>																					<b>Dimensions</b>
<b>A</b> - Length (ft.)	14.1	15.4	18.3	18.4	17.8	17.8	18.3	18.3	22.6	23.6	24.1	25.5	25.9	25.8	26.4	26.8	26.7	27.3	34.2	34.2	<b>A</b> - Length (ft.)
<b>LH</b> - Length, standard (ft.)	19.0	19.0	19.2	19.2	21.3	21.3	21.3	21.3	24.8	28.1	28.1	27.8	27.8	25.8	25.8	26.8	26.8	-	-	-	<b>LH</b> - Length, standard (ft.)
<b>LH</b> - Length with hydr. start (ft.)	-	-	19.2	19.2	22.5	22.5	22.5	22.5	25.8	28.1	28.1	27.8	27.8	25.8	25.8	26.8	26.8	-	-	-	<b>LH</b> - Length with hydr. start (ft.)
<b>B</b> - Center to trip (inch)	13.0	13.0	14.0	14.0	17.5	17.5	19.0	19.0	20.0	26.0	26.0	30.5	30.5	33.7	33.7	29.5	29.5	33.1	104.1	104.1	<b>B</b> - Center to trip (inch)
<b>B1</b> - Center to trip (inch)	-	-	20.0	22.0	24.0	24.0	26.0	26.0	27.0	33.0	33.0	31.0	31.0	33.7	33.7	29.5	29.5	33.1	104.1	104.1	<b>B1</b> - Center to trip (inch)
<b>C</b> - Center to pump guard (inch)	15.0	15.0	15.0	16.0	19.0	19.0	20.5	20.5	25.5	23.0	23.0	22.5	22.5	24.5	24.5	27.0	27.0	-	-	-	<b>C</b> - Center to pump guard (inch)
<b>D</b> - Width of hammer (inch)	18.3	16.5	19.0	19.5	25.0	25.0	28.5	28.5	32.5	35.0	35.0	41.0	41.0	45.5	45.5	52.0	52.0	43.3	90	90	<b>D</b> - Width of hammer (inch)
<b>D1</b> - Width of trip (inch)	24.5	24.5	24.5	24.5	32.0	32.0	37.0	37.0	35.5	47.5	47.5	47.5	47.5	51.2	51.2	-	-	53.1	99.8	99.8	<b>D1</b> - Width of trip (inch)
<b>W</b> - Min. lead width (inch)	21	21	21	21	26	26	32	32	32	42	42	42	42	48	48	-	-	-	-	-	<b>W</b> - Min. lead width (inch)

# Diesel Hammer - Specifications



# Metric Units



- 1) Depends on fuel pump setting, soil type, and pile type.
- 2) Potential energy calculated by multiplying piston weight and stroke. The stroke of the ram is a result of the blow rate and does not consider any pile driving conditions, neither loss by compression or friction.
- 3) Consumption and weights are approximate, weight of guiding depends on type and size of diesel hammer guiding.

All data are subject to change without notification.

Model	D6-32	D8-22	D12-42	D19-42	D25-32	D30-32	D36-32	D46-32	D62-22	D80-23	D100-13	D125-32	D138-32	D160-32	D180-32	D225-22	D250-22	D280-22	D800-12	Model
<b>Approx. Piston Weight (kg)</b> <b>Approx. Anvil Weight (kg)</b>	600 185	800 185	1.280 300	1.820 354	2.500 662	3.000 662	3.600 1.070	4.600 1.070	6.200 1.100	8.000 2.100	10.000 2.100	12.500 3.040	13.800 3.040	16.000 4.355	18.000 4.355	22.503 6.380	24.970 6.380	28.000 6.380	80.000	<b>Approx. Piston Weight (kg)</b> <b>Approx. Anvil Weight (kg)</b>
<b>Blows per minute<sup>1</sup></b> Minimum (1/min) Maximum (1/min)	39 52	37 52	37 52	37 52	37 52	37 52	37 52	37 52	35 50	36 45	36 45	36 45	36 45	36 46	36 46	36 50	36 50	36 50	36 45	<b>Blows per minute<sup>1</sup></b> Minimum (1/min) Maximum (1/min)
<b>Energy per blow<sup>2</sup> (adjustable)</b> Maximum (kNm) Minimum (kNm)	17,0 9,6	25,4 12,8	40,4 20,3	57,6 29,1	79,0 40,0	94,9 48,0	113,8 57,6	145,5 73,6	219,1 107,4	267,3 171,1	334,0 213,8	417,6 267,3	460,9 275,0	534,5 327,4	601,3 368,3	766 397	856 450	933 485	2.665 1.725	<b>Energy per blow<sup>2</sup> (adjustable)</b> Maximum (kNm) Minimum (kNm)
<b>Consumption<sup>3</sup></b> Diesel Fuel (l./hr.) Lubrication Oil (l./hr.)	3,70 0,25	3,80 0,5	4,5 0,5	7,6 0,6	8,0 1,0	10,0 1,0	11,5 1,5	16,0 1,5	20,0 2,0	25,0 2,6	30,0 2,6	36,0 3,6	38,6 3,6	45,0 5,0	49,6 5,0	64 6	72 6	80 5,8	215 8,5	<b>Consumption<sup>3</sup></b> Diesel Fuel (l./hr.) Lubrication Oil (l./hr.)
<b>Capacity</b> Diesel Fuel (l.) Lubrication Oil (l.)	19 5	20 6	24 6,5	75 19	67 19	67 19	89 17	89 17	98 31	155 32	155 32	189 60	189 60	238 80	238 80	458 98	458 98	460 100	1.750 68	<b>Capacity</b> Diesel Fuel (l.) Lubrication Oil (l.)
<b>Weight<sup>3</sup></b> Hammer (kg) Hammer, Standard Operating (kg)	1.620 2.340	1.815 2.426	2.600 3.220	3.795 4.400	5.610 6.710	6.110 7.210	7.880 9.026	8.888 10.025	12.282 13.290	16.907 18.690	20.364 22.135	24.320 27.330	26.020 29.030	31.200 33.800	34.340 37.470	45.508 46.808	48.292 55.104	51.500	160.118	<b>Weight<sup>3</sup></b> Hammer (kg) Hammer, Standard Operating (kg)
<b>Dimensions</b>																				<b>Dimensions</b>
<b>A</b> - Length (mm)	4.300	4.695	5.580	5.610	5.425	5.425	5.580	5.580	6.890	7.195	7.345	7.772	7.894	7.864	8.047	8.153	8.138	8.320	10.420	<b>A</b> - Length (mm)
<b>LH</b> - Length, standard (mm)	5.790	5.790	5.850	5.850	6.490	6.490	6.490	6.490	7.560	8.565	8.565	8.475	8.475	7.864	7.864	8.168	8.168	-	-	<b>LH</b> - Length, standard (mm)
<b>LH</b> - Length with hydr. start (mm)	-	-	-	-	6.860	6.860	6.860	6.860	7.864	8.565	8.565	8.475	8.475	7.864	7.864	8.168	8.168	-	-	<b>LH</b> - Length with hydr. start (mm)
<b>B</b> - Center to trip (mm)	330	330	356	356	445	445	482	482	508	660	660	775	775	856	856	749	749	840	2.645	<b>B</b> - Center to trip (mm)
<b>B1</b> - Center to trip (mm)	-	-	-	559	610	610	660	660	686	838	838	788	788	856	856	749	749	840	2.645	<b>B1</b> - Center to trip (mm)
<b>C</b> - Center to pump guard (mm)	381	381	381	406	482	482	521	521	648	584	584	572	572	622	622	685	685	-	-	<b>C</b> - Center to pump guard (mm)
<b>D</b> - Width of hammer (mm)	465	420	482	495	635	635	724	724	825	890	890	1.042	1.042	1.156	1.156	1.321	1.321	1.100	2.286	<b>D</b> - Width of hammer (mm)
<b>D1</b> - Width of trip (mm)	622	622	622	622	812	812	940	940	902	1.206	1.206	1.206	1.206	1.300	1.300	-	-	1.350	2.536	<b>D1</b> - Width of trip (mm)
<b>W</b> - Min. lead width (mm)	534	534	534	534	660	660	812	812	812	1.067	1.067	1.067	1.067	1.200	1.200	-	-	-	-	<b>W</b> - Min. lead width (mm)



## Swinging Leads - U Shape

- The lead is free-hanging at a 3-line crane boom. There are lines for the lead, hammer and pile
- Lead stabs in the ground swing in the upper end in every direction

## Swinging Lead with Spotter Support - U Shape

- The lead is free-hanging at a 3-line crane boom. There are lines for the lead, hammer and pile
- The hydraulic spotter swings the lead more precisely and quicker to the ram point
- Lead stabs in the ground to swing the upper end in every direction

## Caisson Type Leads - Offshore and Onshore

- Lead and hammer with helmet hanging from the crane or derrick
- Lead is supported by the crane
- Batter piling is possible
- Pile adaptors are used for large diameter piles

## Fixed Extended Leads with Spotter Support - U Shape

- The lead is attached with a boom point connector to the crane boom top and the lower end is supported by a hydraulic adjustable spotter
- Exact positioning of the pile is possible while also adjusting to the exact batter
- 2-line head block for hammer and pile line
- Upgrade the system with additional pile line and auger drilling equipment

## Telescopic Leads

- Adapter sleds are fixed to the base carrier's mast



*Caisson Lead*



*Fixed Lead with Spotter Support*



*Caisson Type Lead*

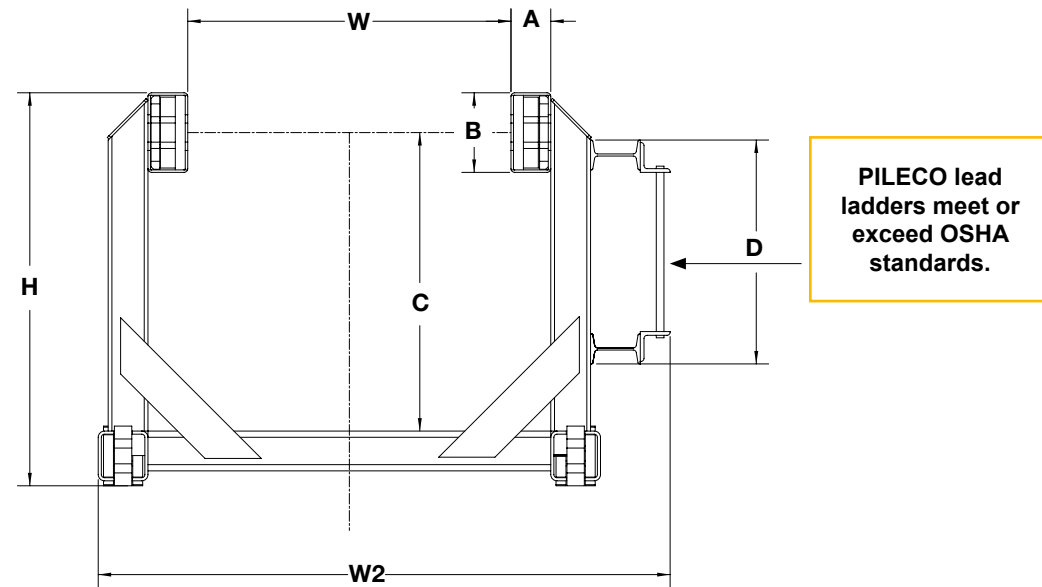
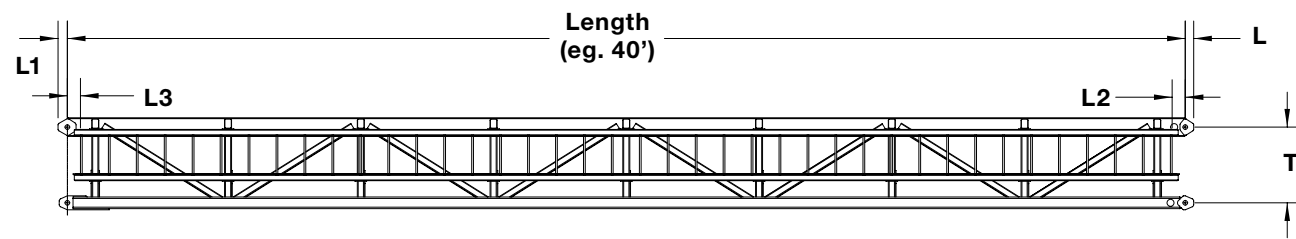


*Swinging Lead*



*Telescopic Lead*

## US-Shape Leads



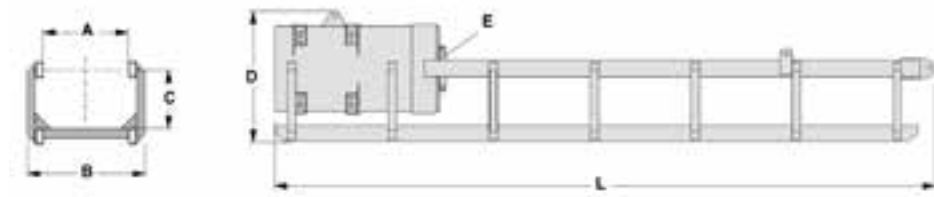
### Standard Units

Bolt Style	L (inch)	L1 (inch)	L2 (inch)	L3 (inch)	W (inch)	W2 (inch)	T (inch)	C (inch)	H (inch)	D (inch)	A (inch)	B (inch)	Weight/ lbs. per ft.	Hammer
U-21	0.5	0.5	4.9	4.9	21.5	44.5	30.8	27	35	22.5	4	8	105	D19-42
U-26	3.6	4.0	5.6	5.6	26.5	54.5	32.5	30	39	22.5	4	8	140	D30-32
U-32	3.6	4.0	5.6	5.6	32.5	57.5	32.5	30	39	22.5	4	8	150	D62-32
U-42	3.6	4.0	5.6	5.6	42.5	70.0	45.5	34	52	22.5	4	8	200	D138-32
U-48	3.6	4.0	5.6	5.6	48.5	76.0	51.5	37	58	22.5	4	8	225	D180-32

### Metric Units

Bolt Style	L (cm)	L1 (cm)	L2 (cm)	L3 (cm)	W (cm)	W2 (cm)	T (cm)	C (cm)	H (cm)	D (cm)	A (cm)	B (cm)	Weight/ kg per m	Hammer
U-21	1,3	1,3	12,4	12,4	54,6	113,0	78,4	68,6	88,9	57,2	10,2	20,3	156,257	D19-42
U-26	9,2	10,2	14,3	14,3	67,3	130,8	82,6	76,2	99,1	57,2	10,2	20,3	208,343	D30-32
U-32	9,2	10,2	14,3	14,3	82,6	146,1	82,6	76,2	99,1	57,2	10,2	20,3	223,225	D62-32
U-42	9,2	10,2	14,3	14,3	108,0	108,0	115,6	86,4	132,1	57,2	10,2	20,3	297,633	D138-32
U-48	9,2	10,2	14,3	14,3	123,2	193,0	130,8	94,0	147,3	57,2	10,2	20,3	334,836	D180-32

## Caisson Leads

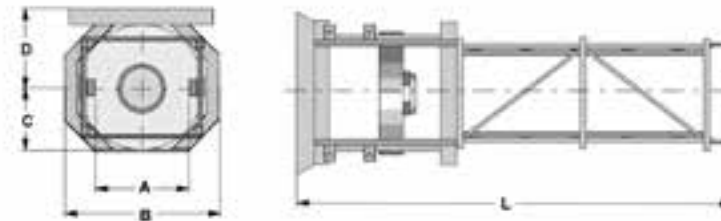


### Standard Units - in. (except L in ft.)

Lead Type	A	B	C	D	E	L	Pile (max.)	Diesel Hammer	Weight (lbs.)
OS 20-02	21.8	36	22	47	17	18.9	24	D19-42	4,920
OS 40-02	32.5	36	21	47	23	23.9	36	D30-32	8,400

### Metric Units - cm (except L in m)

Lead Type	A	B	C	D	E	L	Pile (max.)	Diesel Hammer	Weight (kg)
OS 20-02	55,4	91,4	55,9	119,4	43,2	5,8	61,0	D19-42	2.231,7
OS 40-02	82,6	91,4	53,3	119,4	58,4	7,3	91,4	D30-32	3.810,2

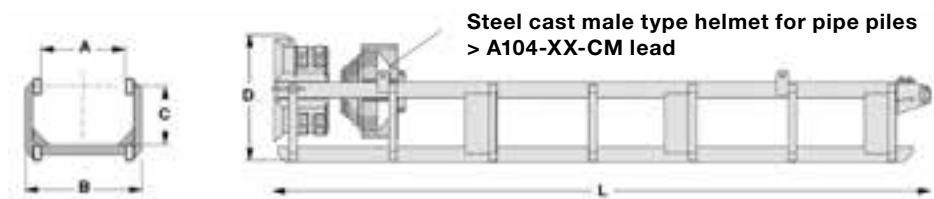


### Standard Units - in. (except L in ft.)

Lead Type	A	B	C	D	L	Pile Ø (max.)	Diesel Hammer	Weight (lbs.)
OS 98	68.5	123	50.3	61.5	36.7	98	D280-22	73,500
OS 120	68.5	145	62.0	60.0	43.0	120	D280-22	99,500

### Metric Units - cm (except L in m)

Lead Type	A	B	C	D	L	Pile Ø (max.)	Diesel Hammer	Weight (kg)
OS 98	174	312,4	127,8	156,2	11,2	249	D280-22	33.339
OS120	174	368,3	157,5	152,4	13,1	305	D280-22	45.132



### Standard Units - in. (except L in ft.)

Lead Type	A	B	C	D	Cushion	L	Pile Ø (max.)	Diesel Hammer	Weight (lbs.)
A104-36-CM	42.5	58.5	29.0	62.5	23	27.2	36	D62-22	13,150
A104-42-CM	48.5	66.5	37.0	72.0	27	36.0	42	D138-32	22,200
A104-48-CM	54.5	72.5	37.0	75.0	27	36.0	48	D180-32	25,000
A104-66-CM	66.5	84.5	38.5	85.0	27	40.0	66	D180-32	42,200
OS 200-60	68.5	60.0	46.5	97.0	37	41.0	60	D200-42	65,000

### Metric Units - cm (except L in m)

Lead Type	A	B	C	D	Cushion	L	Pile Ø (max.)	Diesel Hammer	Weight (kg)
A104-36-CM	108,0	148,6	73,7	158,8	58,4	8,3	91,4	D62-22	5.964,7
A104-42-CM	123,2	168,9	94,0	182,9	68,6	11,0	106,7	D138-32	10.069,8
A104-48-CM	138,4	184,2	94,0	190,5	68,6	11,0	121,9	D180-32	11.339,8
A104-66-CM	169,0	214,6	97,8	215,9	68,6	12,2	167,6	D180-32	19.141,6
OS 200-60	174,0	152,4	118,1	246,4	94,0	12,5	152,4	D200-42	29.483,0





Design developments and process improvements may require the specification and materials to be updated and changed without prior notice or liability. Illustrations may include optional equipment and not show all possible configurations. These and the technical data are provided as indicative information only, with any errors and misprints reserved.

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