

BUMA CASING OSCILLATOR



BUMA CE CO., LTD.
BUMA Construction Equipment

Company Introduction

BUMA CE is a leading manufacturer and supplier of foundation equipment in Korea. Since built in 1992, we have been supplying the equipment all around the world as we retain the outstanding reputation of good quality product and much knowledge in foundation work.

Our mission is to provide customers with the best solution based on years of engineering experiences.





BUMA + PREMIUM

Shaft drilling for large bored piling
Strong oscillating torque and lifting force
Bore piling for big structure building



Reverse Circulation Drilling Rig



Casing Oscillator



Casing Rotator



Spherical Grab



Hammer Grab

Casing Oscillator Method



Cased Drilled Shafts are required when ground conditions are so unstable that drilled holes can not safely be stabilized with drilling slurry or where loss of ground must be controlled.

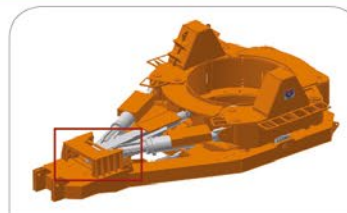
Casing can be temporary or permanent steel pipe which provides a 100% stable excavation for the full length of the drilled shaft. The Casing Oscillator method provides a superior method for drilled shaft construction with high quality ensuring an uninterrupted construction schedule through the elimination of anomalies.

This technology is the only proven method to drill large diameter shafts in caving conditions, such as loose sands and gravelly soil with cobbles and boulders. Boulders several feet in diameter can be removed safely by the use of Hammer Grab without major interruption to the excavation process. Since only water is used for drilling, environmental concerns are minimized or totally eliminated.

Advantages of BUMA CE Casing Oscillator

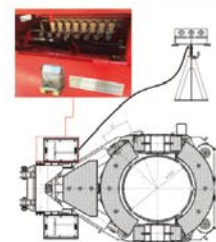
Flexible Sliding Box

When the oscillator is operated, much torque and force are concentrated on oscillating cylinder's rod and center rod. Sometimes it causes too much stress on the parts and make them broken. BUMA flexible sliding box (patent) release the stress and provide stable and durable working condition.



Remote Control

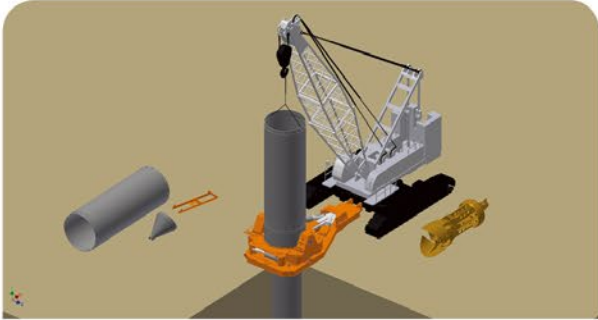
BUMA Casing Oscillator has 2 types of control, hydraulic manual control and remote control. With this benefit if the remote control is out of order and urgently required to operate the machine, it can be operated using hydraulic manual control



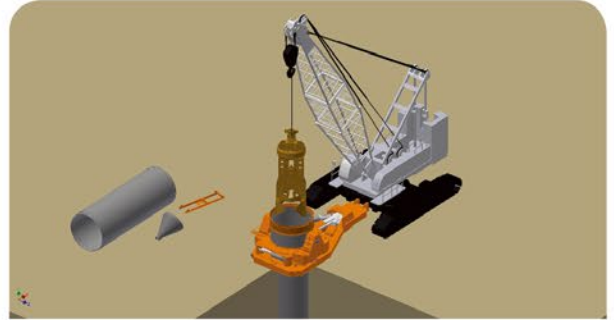
As, option, BUMA provides wireless remote control

User-Friendly Maintenance

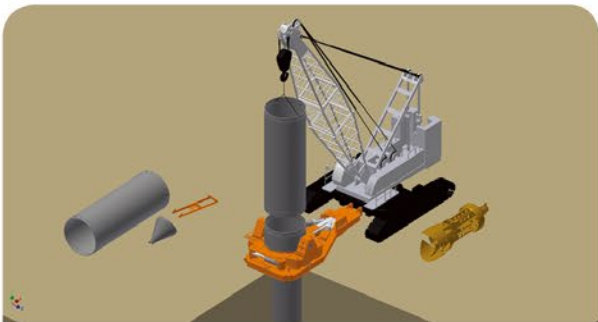
Working Procedure



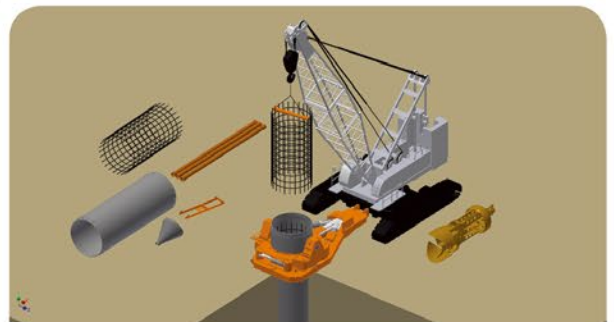
01 Install starter casing equipped with cutting teeth. Add new casing section with bolted connection.



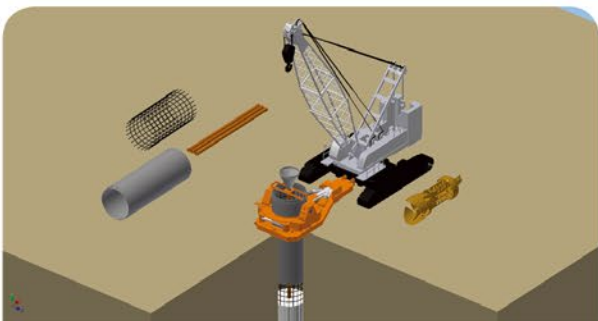
02 Excavate soil continuously during casing installation. Maintain water head inside casing to balance external hydrostatic head at all times.



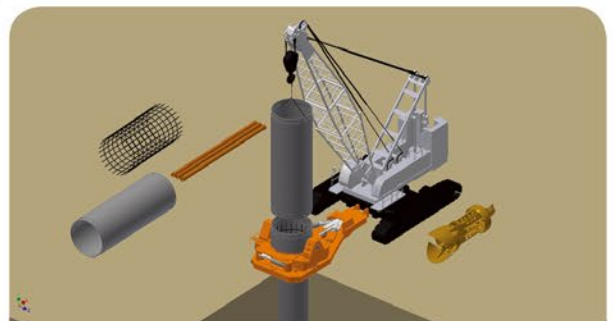
03 Add new casing sections until pile has been excavated to depth. Keep casing tip ahead of excavation at all times.



04 Install reinforcement cage and suspend at proper elevation.

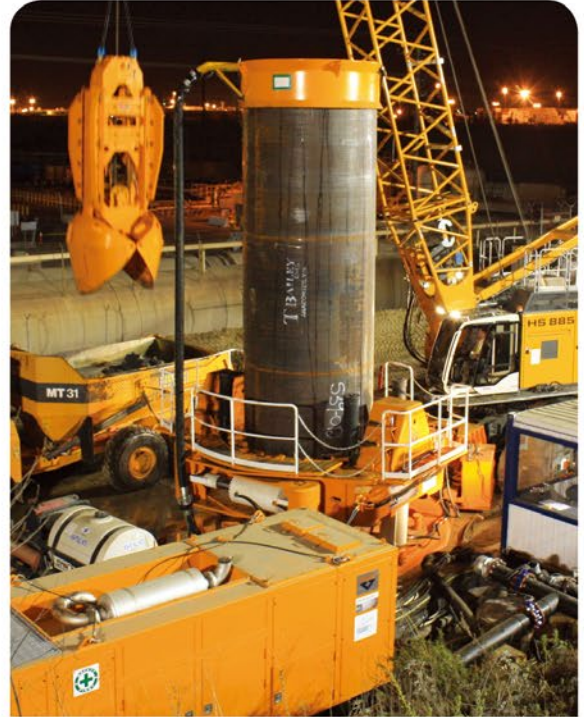
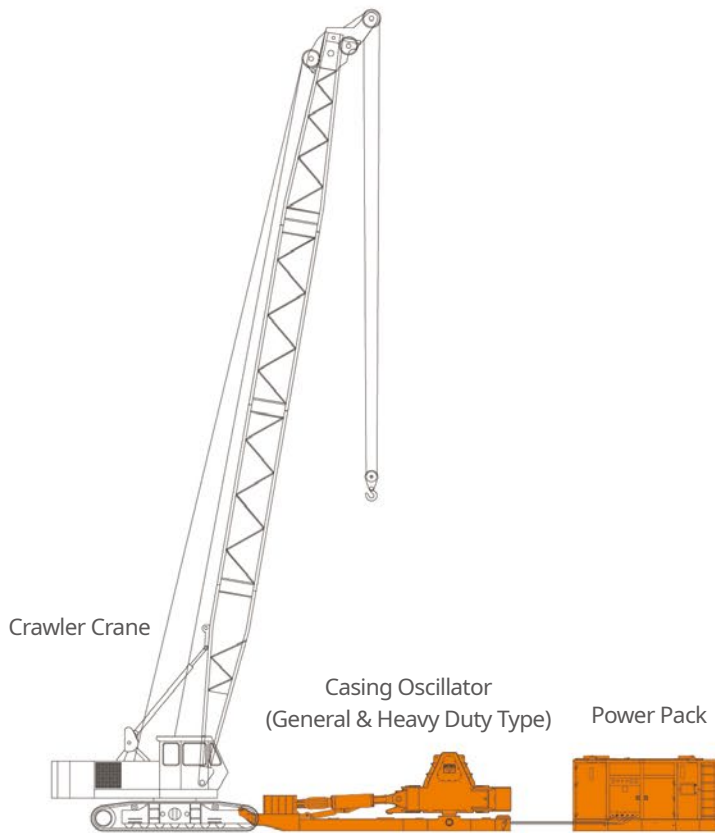


05 Pour concrete using sectional tremie pipe. Maintain concrete head above casing tip at all times.

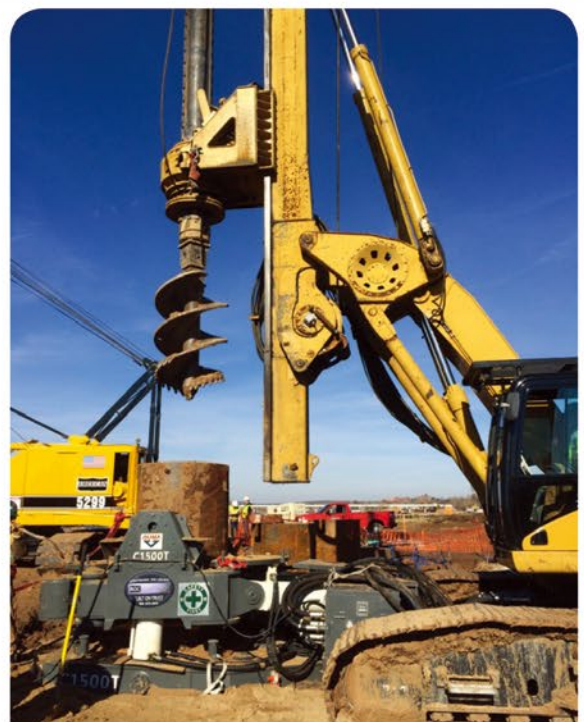


06 Remove casing and tremie pipe sections simultaneously as concrete is poured.

General / Heavy Duty Type



Tiny Type



For drill mount oscillator (Tiny Model), It is required oscillator kit (Hooking lugs and Hyd. Ports to oscillator) to operate with the rotary drill rig.

General Type

Model	C2000G		C2500G		C3000G		C3500G		C4000G	
Max. Casing Diameter	2,000 mm	(6.6 ft)	2,500 mm	(8.2 ft)	3,000 mm	(9.8 ft)	3,500 mm	(11.5 ft)	4,000 mm	(13.1 ft)
Max. Oscillating Torque	451 ton.m (3,262,088 lbf. ft)		833 ton.m (6,025,097 lbf. ft)		1,017 ton.m (7,355,971 lbf. ft)		1,690 ton.m (12,223,787 lbf. ft)		2,161 ton.m (15,630,535 lbf. ft)	
Max. Lifting Force	314 ton	(692,252 lbf)	581 ton	(1,280,886 lbf)	726 ton	(1,600,556 lbf)	1,110 ton	(2,447,131 lbf)	1,257 ton	(2,771,211 lbf)
Lifting Stroke	600 mm	(23.6 in)	650 mm	(25.6 in)	650 mm	(25.6 in)	650 mm	(25.6 in)	650 mm	(25.6 in)
Max. Clamping Force	257 ton	(566,588 lbf)	402 ton	(886,258 lbf)	509 ton	(1,122,153 lbf)	532 ton	(1,172,859 lbf)	579 ton	(1,276,476 lbf)
Weight (Approx.)	31 ton	(68,343 lb)	48 ton	(105,822 lb)	53 ton	(116,845 lb)	77 ton	(169,756 lb)	100 ton	(220,462 lb)
Overall Width	3,589 mm	(11.8 ft)	4,240 mm	(13.9 ft)	4,850 mm	(15.9 ft)	5,600 mm	(18.4 ft)	6,200 mm	(20.3 ft)
Overall Length	7,921 ton	(26. ft)	8,961 ton	(29.4 ft)	9,171 ton	(30.1 ft)	11,000 ton	(36.1 ft)	11,200 ton	(36.7 ft)
Overall Height	2,210 mm	(7.3 ft)	2,575 mm	(8.4 ft)	2,655 mm	(8.7 ft)	2,750 mm	(9.0 ft)	3,100 mm	(10.2 ft)
Power Pack	P2612C / P3618C P3818C / P4214D		P3618C / P5318C P5518V / P4218D		P5318C P5518V / P4218D		P6028C / P6128V		P6028C / P6128V	

Heavy Duty Type

Model	C2000H		C2500H		C3000H		C3500H		C4000H	
Max. Casing Diameter	2,000 mm	(6.6 ft)	2,500 mm	(8.2 ft)	3,000 mm	(9.8 ft)	3,500 mm	(11.5 ft)	4,000 mm	(13.1 ft)
Max. Oscillating Torque	721 ton.m (5,215,000 lbf. ft)		942 ton.m (6,813,495 lbf. ft)		1,185 ton.m (8,571,117 lbf. ft)		1,992 ton.m (14,408,156 lbf. ft)		2,513 ton.m (18,176,554 lbf. ft)	
Max. Lifting Force	581 ton	(1,280,886 lbf)	726 ton	(1,600,556 lbf)	804 ton	(1,772,517 lbf)	1,257 ton	(2,771,211 lbf)	1,576 ton	(3,474,485 lbf)
Lifting Stroke	600 mm	(23.6 in)	650 mm	(25.6 in)	650 mm	(25.6 in)	650 mm	(25.6 in)	650 mm	(25.6 in)
Max. Clamping Force	402 ton	(886,258 lbf)	509 ton	(1,122,153 lbf)	509 ton	(1,122,153 lbf)	579 ton	(1,276,476 lbf)	680 ton	(1,499,143 lbf)
Weight (Approx.)	42 ton	(92,594 lb)	54 ton	(119,049 lb)	58 ton	(127,868 lb)	81 ton	(178,574 lb)	105 ton	(231,485 lb)
Overall Width	3,827 mm	(12.6 ft)	4,210 mm	(13.8 ft)	4,850 mm	(15.9 ft)	5,600 mm	(18.4 ft)	6,200 mm	(20.3 ft)
Overall Length	8,431 ton	(27.7 ft)	9,066 ton	(29.7 ft)	9,171 ton	(30.1 ft)	11,000 ton	(36.1 ft)	11,200 ton	(36.7 ft)
Overall Height	2,525 mm	(8.3 ft)	2,655 mm	(8.7 ft)	2,655 mm	(8.7 ft)	2,750 mm	(9.0 ft)	3,100 mm	(10.2 ft)
PowerPack	P2612C / P3618C P3818C / P4214D		P3618C / P5318C P5518V / P4218D		P5318C P5518V / P4218D		P6028C / P6128V		P6028C / P6128V	

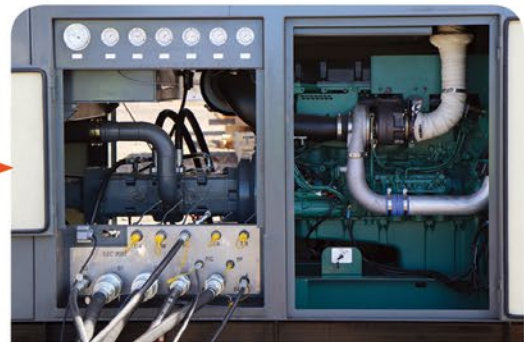
Tiny Type

Model	C1000T		C1300T		C1500T		C2000T		C2500T	
Max. Casing Diameter	1,000 mm	(3.3 ft)	1,300 mm	(4.3 ft)	1,500 mm	(4.9 ft)	2,000 mm	(6.6 ft)	2,500 mm	(8.2 ft)
Max. Oscillating Torque	86 ton.m (622,039 lbf. ft)		206 ton.m (1,490,000 lbf. ft)		228 ton.m (1,649,126 lbf. ft)		306 ton.m (2,213,301 lbf. ft)		539 ton.m (3,898,592 lbf. ft)	
Max. Lifting Force	99 ton	(218,258 lbf)	129 ton	(284,396 lbf)	201 ton	(443,129 lbf)	243 ton	(535,723 lbf)	314 ton	(692,252 lbf)
Lifting Stroke	320 mm	(12.6 in)	450 mm	(17.7 in)	450 mm	(17.7 in)	450 mm	(17.7 in)	450 mm	(17.7 in)
Max. Clamping Force	64 ton	(141,096 lbf)	133 ton	(293,215 lbf)	157 ton	(346,126 lbf)	183 ton	(403,446 lbf)	226 ton	(498,245 lbf)
Weight (Approx.)	6 ton	(13,228 lb)	13 ton	(28,660 lb)	15.1 ton	(33,290 lb)	20.3 ton	(44,754 lb)	25 ton	(55,116 lb)
Overall Width	2,239 mm	(7.3 ft)	2,539 mm	(8.3 ft)	2,815 mm	(9.2 ft)	3,345 mm	(11. ft)	3,965 mm	(13. ft)
Overall Length	3,145 ton	(10.3 ft)	3,990 ton	(13.1 ft)	4,315 ton	(14.2 ft)	5,272 ton	(17.3 ft)	6,280 ton	(20.6 ft)
Overall Height	1,250 mm	(4.1 ft)	1,600 mm	(5.2 ft)	1,600 mm	(5.2 ft)	1,685 mm	(5.5 ft)	1,890 mm	(6.2 ft)
Power Pack	P2612C / P3618C P3818C / P4214D		P3618C / P5318C P5518V / P4218D		P5318C P5518V / P4218D		P6028C / P6128V		P6028C / P6128V	

** The specifications are subject to change for improvements or customer's requirement

Power Pack

Excellent Stability, Powerful Performance

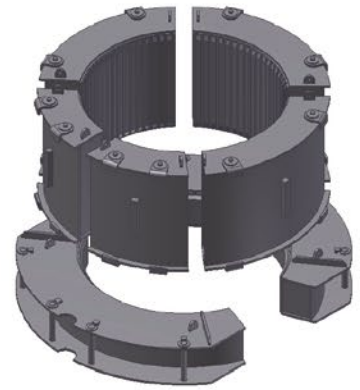


Specification

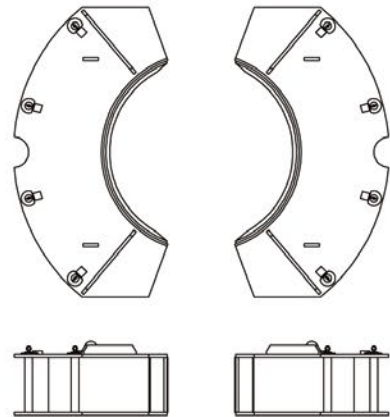
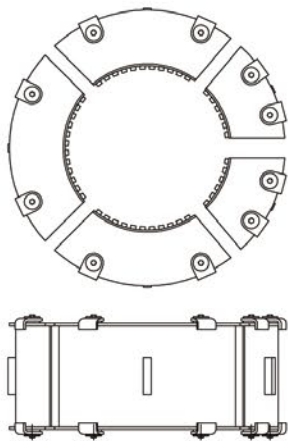
Model	Emission Compliance	Engine Output & rpm	Hyd.Pump 250bar (Max. 350bar)	Dimension	Weight
P2612C	TIER 2, 3	194 kW / 260 HP / 2,200 rpm	201 l/min x 2	1,912 W x 4,000 L x 2,283 H	7.5 ton
P2812V	TIER 3	210 kW / 286 HP / 2,200 rpm	201 l/min x 2	1,912 W x 4,000 L x 2,283 H	7.5 ton
P3618V	TIER 3	265 kW / 360 HP / 2,100 rpm	324 l/min x 2	1,912 W x 4,800 L x 2,476 H	9 ton
P3618C	TIER 3	268 kW / 360 HP / 2,100 rpm	324 l/min x 2	1,912 W x 4,900 L x 2,476 H	9 ton
P3818C	TIER 4F	283 kW / 380 HP / 2,100 rpm	324 l/min x 2	1,912 W x 4,800 L x 2,476 H	9 ton
P4214D	TIER 1	307 kW / 418 HP / 1,800 rpm	252 l/min x 2	1,912 W x 4,900 L x 2,476 H	9 ton
P4218D	TIER 1	307 kW / 418 HP / 1,800 rpm	324 l/min x 2	1,912 W x 4,900 L x 2,476 H	9 ton
P5318C	TIER 3, 4F	399 kW / 535 HP / 2,100 rpm	324 l/min x 2	1,912 W x 5,400 L x 2,562 H	11 ton
P5418V	TIER 3	397 kW / 540 HP / 1,800 rpm	324 l/min x 2	1,912 W x 5,400 L x 2,562 H	11 ton
P5518V	TIER 4F	405 kW / 551 HP / 1,900 rpm	324 l/min x 2	1,912 W x 5,400 L x 2,300 H	11 ton
P6028C	TIER 3, 4F	447 kW / 600 HP / 2,100 rpm	504 l/min x 2	1,912 W x 5,400 L x 2,562 H	11.5 ton
P6128V	TIER 4F	450 kW / 612 HP / 1,800 rpm	504 l/min x 2	1,912 W x 5,400 L x 2,562 H	11.5 ton

Reducing Adapter

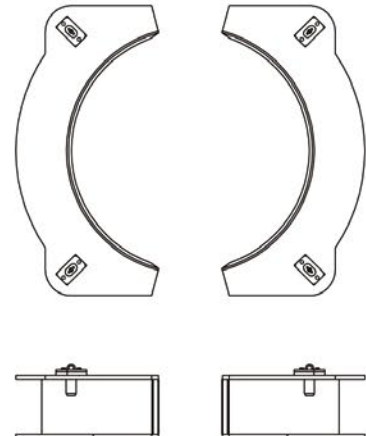
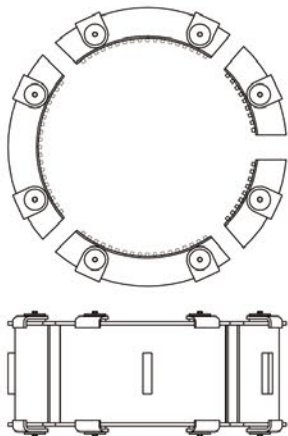
Application of smaller casing diameter than the original diameter of the Casing Oscillator is available through installation of reducing Adapter. For the proper operation, It is recommended to apply for reducing size up to 500mm from the original diameter.



General / Heavy Duty Type

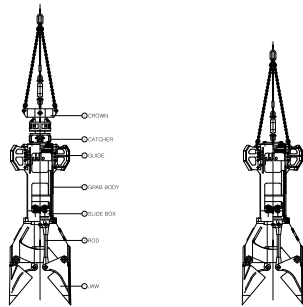


Tiny Type

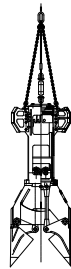


Hammer Grab

Big excavation volume of Hammer Grab with free-fall function of crane shows the fastest and the most efficient boring ability in large diameter piling. Large grab open diameter is available for excavating and removing the gravels and boulders. BUMA CE pulley sheaves of grease-filled bearing type show the long durability



Single Rope



Double Rope

Standard Type

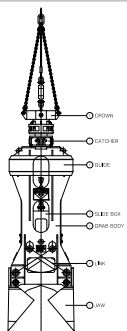
Model	Casing Diameter [mm]	Jaw Capacity [t]	Length [mm]		Weight [kg]	
			Single	Double	Single	Double
H1050S	1,200 / 1,120	220	4,533	3,620	5,097	4,350
H1350S	1,500 / 1,400	500	4,753	3,840	5,697	4,950
H1600S	1,800 / 1,680	1,140	5,113	4,200	6,197	5,450
H1800S	2,000 / 1,880	1,400	5,293	4,380	6,617	5,870

Heavy Duty Type

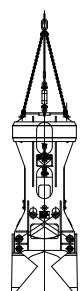
Model	Casing Diameter [mm]	Jaw Capacity [t]	Length [mm]		Weight [kg]	
			Single	Double	Single	Double
H1350A	1,500 / 1,400	830	5,070	4,190	7,630	6,920
H1600A	1,800 / 1,680	1,240	5,220	4,340	8,100	7,380
H1800A	2,000 / 1,880	1,730	5,340	4,460	8,470	7,750
H1800B	2,000 / 1,880	1,730	5,970	5,100	12,530	11,700
H2250B	2,500 / 2,380	3,140	6,160	5,290	14,540	13,710
H2750B	3,000 / 2,840	5,350	6,660	5,600	17,400	16,330
H3300C	3,600 / 3,420	9,810	8,870	7,810	27,800	26,740

X-Link Operating Type

Model	Casing Diameter [mm]	Jaw Capacity [t]	Length [mm]		Weight [kg]	
			Single	Double	Single	Double
H750R	900 / 820	120	3,840	3,010	2,130	1,730
H1350R	1,500 / 1,400	500	5,270	4,400	5,220	4,460
H1600R	1,800 / 1,680	1,100	5,570	4,700	7,660	6,900
H1800R	2,000 / 1,880	1,400	6,030	5,050	8,640	7,810
H2000R	2,500 / 2,380	1,890	6,510	5,530	9,840	9,020
H2300R	3,000 / 2,840	2,810	7,130	6,150	11,880	11,060



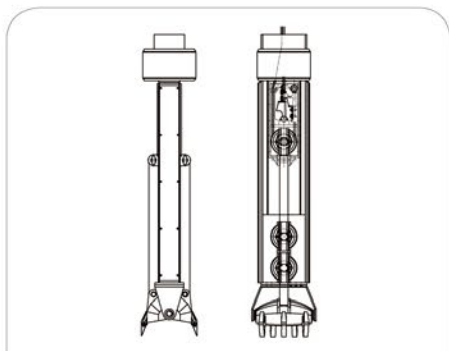
Single Rope



Double Rope

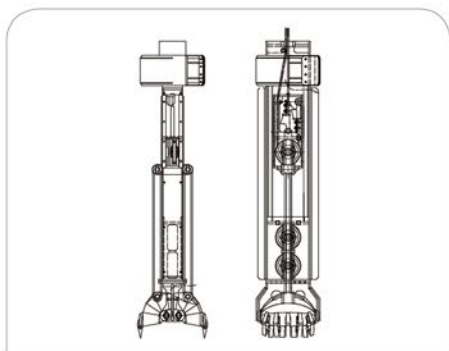
Spherical Grab

Double rope operation with strong grab force shows the best performance of excavating hard soil and even soft rock.



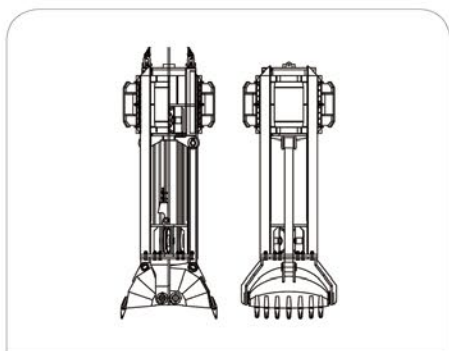
SG0 Class

Model	Casing Diameter [mm]	Jaw Capacity [t]	Length [mm]	Weight [kg]
S780	900 / 820	170	4,290	5,750
S880	1,000 / 920	190	4,370	5,950
S1080	1,200 / 1,120	210	4,470	6,850



SG1 Class

Model	Casing Diameter [mm]	Jaw Capacity [t]	Length [mm]	Weight [kg]
S1180	1,300 / 1,220	230	5,330	8,000
S1350	1,500 / 1,400	400	5,790	10,300
S1630	1,800 / 1,680	730	5,875	11,300

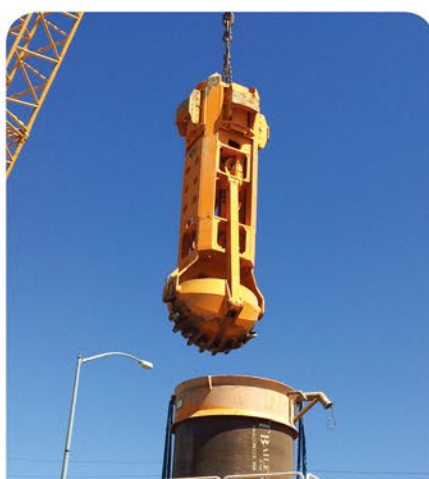


SG2 Class

Model	Casing Diameter [mm]	Jaw Capacity [t]	Length [mm]	Weight [kg]
S1810	2,000 / 1,880	970	5,800	13,850
S2010	2,200 / 2,080	1,450	6,000	17,000
S2310	2,500 / 2,380	2,250	6,105	18,500
S2580	2,800 / 2,640	3,050	6,215	19,600
S2710	3,000 / 2,840	3,900	6,325	20,300

SG3 Class

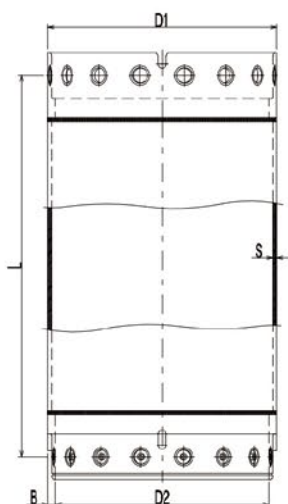
Model	Casing Diameter [mm]	Jaw Capacity [t]	Length [mm]	Weight [kg]
S2980	3,200	4,700	7,200	28,000
S3170	3,400	5,550	7,300	29,200
S3310	3,600	6,800	7,400	31,000



Casing Tube



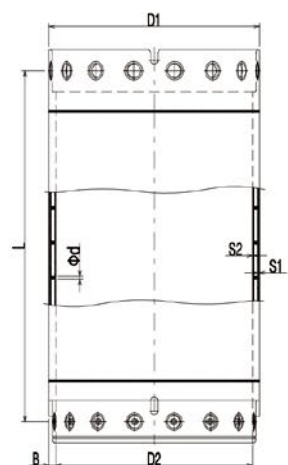
Single Wall Casing



D1 / D2	S	B	Weight (kg) per Working Length (L)						
			1m	2m	3m	4m	5m	6m	5m
	[mm]								
600 / 520	20	40	380	672	993	1,255	1,546	1,838	2,421
700 / 620	20	40	447	789	1,131	1,473	1,815	2,157	2,841
800 / 720	20	40	514	906	1,298	1,690	2,082	2,474	3,258
900 / 820	20	40	580	1,022	1,464	1,906	2,348	2,790	3,674
1,000 / 920	20	40	640	1,133	1,626	2,119	2,612	3,105	4,091
1,080 / 1,000	20	40	690	1,190	1,720	2,260	2,820	3,350	4,420
1,200 / 1,120	25	40	860	1,600	2,340	3,080	3,820	4,560	6,030
1,500 / 1,400	25	50	1,440	2,370	3,300	4,230	5,160	6,090	7,950
1,800 / 1,700	25	50	1,720	2,830	3,950	5,070	6,190	7,310	9,550
1,800 / 1,680	25	60	1,837	2,932	4,026	5,120	6,215	7,309	9,498
2,000 / 1,880	25	60	2,190	3,430	4,670	5,910	7,150	8,390	10,870
2,200 / 2,080	25	60	2,410	3,780	5,140	6,510	7,880	9,250	11,990
2,500 / 2,380	30	60	2,810	4,670	6,530	8,400	10,270	12,140	15,880
2,800 / 2,640	35	80	3,929	6,488	9,047	11,606	14,166	16,725	21,843
3,000 / 2,840	35	80	4,147	6,706	9,265	11,824	14,384	16,943	22,061

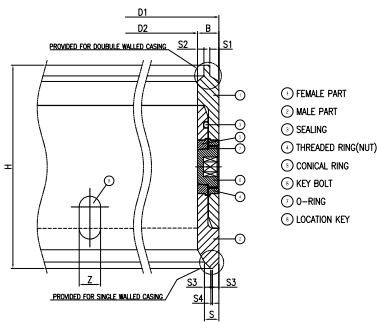


Double Wall Casing



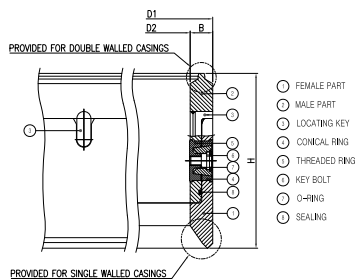
D1 / D2	S1	S2	D	B	Longitudinal Bars [Q'ty]	Weight (kg) per Working Length (L)						
						1m	2m	3m	4m	5m	6m	5m
600 / 520	15	10	13	40	18	433	805	1,177	1,549	1,921	2,293	3,037
700 / 620	15	10	13	40	20	509	945	1,381	1,817	2,253	2,689	3,561
800 / 720	15	10	13	40	24	587	1,090	1,593	2,096	2,599	3,102	4,108
900 / 820	15	10	13	40	26	653	1,206	1,759	2,312	2,865	3,418	4,524
1,000 / 920	15	10	13	40	30	724	1,343	1,962	2,581	3,200	3,819	5,057
1,080 / 1,000	15	10	13	40	32	790	1,440	2,155	2,845	3,530	4,210	5,570
1,200 / 1,120	15	10	13	40	36	870	1,620	2,365	3,120	3,870	4,610	6,110
1,500 / 1,400	20	15	13	50	45	1,485	2,520	3,555	4,590	5,625	6,660	8,735
1,800 / 1,700	20	15	13	50	55	1,910	3,505	5,085	6,675	8,270	9,865	13,055
1,800 / 1,680	20	20	18	60	55	2,251	4,600	6,670	9,635	11,920	14,205	18,775
2,000 / 1,880	20	20	18	60	60	2,530	4,600	6,670	8,730	10,800	12,870	17,010
2,200 / 2,080	20	20	18	60	66	2,785	5,065	7,350	9,635	11,920	14,205	18,775
2,500 / 2,380	20	20	18	60	76	3,105	5,710	8,315	10,920	13,525	16,130	21,340
2,800 / 2,640	25	25	27	80	86	4,530	8,335	12,135	15,945	19,755	23,565	31,185
3,000 / 2,840	25	25	27	80	90	4,940	9,015	13,090	17,170	21,250	25,330	33,490

Casing Joint



General Type

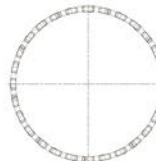
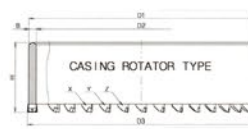
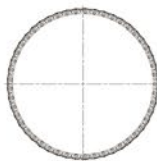
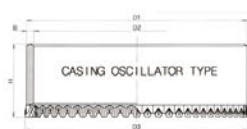
D1 / D2	H	B	Conical Ring		Threaded Ring		Bolt		Locating Key		Sealing [mm]	Weight [kg]
[mm]			Q'ty	Type	Q'ty	Type	Q'ty	Type	Q'ty	Type		
700 / 620	380	40	8	CN60	8	TN60	8	M80	4	40	10x610	221
900 / 820	380	40	10	CN80	10	TN80	10	M80	4	40	10x785	287
1,000 / 920	380	40	10	CN80	10	TN80	10	M80	4	40	10x900	321
1,200 / 1,120	380	40	12	CN110	12	TN110	12	M80	4	40	12x1,075	388
1,300 / 1,220	380	40	12	CN110	12	TN110	12	M80	4	40	12x1,200	421
1,500 / 1,400	580	50	16	CN150	16	TN150	16	M90	4	50	12x1,370	927
1,800 / 1,700	580	50	20	CN150	20	TN150	20	M90	4	50	12x1,670	1,119
2,000 / 1,880	580	60	20	CN200	20	TN200	20	M100	4	50	12x1,860	1414



Heavy Duty Type

D1 / D2	H	B	Conical Ring		Threaded Ring		Bolt		Locating Key		Sealing [mm]	Weight [kg]
[mm]			Q'ty	Type	Q'ty	Type	Q'ty	Type	Q'ty	Type		
1,500 / 1,400	625	50	16	165	16	T165	16	B42	4	50	10x1,370	965
1,800 / 1,700	625	50	20	165	20	T165	20	B42	4	50	10x1,670	1,185
1,800 / 1,680	625	60	20	220	20	T220	20	B48	4	50	10x1,650	1,385
2,000 / 1,880	625	60	20	220	20	T220	20	B48	4	50	12x1,860	1,540
2,200 / 2,080	625	60	20	220	20	T220	20	B48	4	50	12x2,050	1,700
2,500 / 2,380	625	60	20	220	20	T220	20	B48	4	50	12x2,300	1,885
2,800 / 2,640	625	80	24	300	24	T300	24	B65	6	50	12x 2,600	2,900
3,000 / 2,840	625	80	24	C300	24	T300	24	B65	6	50	12x2,800	3,110

Casing Shoe & Shoe Bit



Pocket Assembling



Welding Assembling



Rock Drilling



Pocket Assembling



Welding Assembling

Tremie Pipe



BUMA provides various types of Tremie Pipe according to Pipe internal diameter NW200 (183 mm), NW250 (254 mm) & NW300 (302 mm).

We also manufacture a complete set of tremie equipment such as hopper, lifting eye, suspension platform and Tremie Rack.





Honolulu Rail Transit Project Honolulu HI, USA

Casing Diameter : Ø 3,600 mm

Casing Driving : 57 m

Equipment : C3600H



The Curse of Oak Island

Oak Island Nova Scotia,
Canada

Casing Diameter : Ø 1,500 mm

Equipment : C1500T, C2200T, H1350A, H750R



THE CURSE OF
OAK ISLAND™





Northfield Bridge Project

Gracefield Quebec, Canada

Casing Diameter : Ø 2,500 mm

Casing Driving Depth : 50 m

Equipment : C2500T

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