



STRIVE TO BE THE BEST

—UNIMATE MOTTO



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**ROTARY
DRILLING
TOOLS**





COMPANY PROFILE

Unimate Heavy Industry Co.,Ltd (UNIMATE) is a leading manufacturer of rotary drilling tools.

As a company dedicated to the R&D and manufacture of various rotary drilling tools, attachments and spare parts, by depending on a group of engineers and skilled workers with years of experience in foundation engineering and construction design, Unimate has won more than 20 national patents and takes the lead in terms of drilling technology and quality in China's foundation engineering industry.

With the advanced production facilities, we have completed the designs of drilling tools, attachments and construction methods in many large-scale and complicated foundation projects such as 2014 World Cup Stadium, 2016 Olympic Games Stadium, Wuhan-Guangzhou High Speed Railway, Shanghai-Kunming High Speed Railway, Changsha subway, etc, which have helped us to win a good reputation among our clients.

UNIMATE highly focuses on international cooperation and communication. Till present, our products have been exported to over 50 countries and regions such as the U.S, the U.K, Singapore, France, Australia, etc.



20 Patents

We take pride in our leadership in the rotary drilling tool industry in China



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Advantages of Unimate Drilling Tools

- ▶ With the help of experienced team of engineers and well-supervised production team, Unimate has a greater ability to produce top-quality foundation drilling tools.
- ▶ High-quality welding and finishing throughout the drilling tool is very important to increase the life of the Drilling tool. Unimate drilling tools are manufactured under very experienced supervision, and quality inspection and control before delivery ensures that the right product is sent out to the customers.
- ▶ Wear resisting strips on the drilling tool help to minimize the wearing out of body of the drilling tools.
- ▶ Each different type of drilling tool is designed to meet maximum possible variations in the soil for specific job-site conditions.
- ▶ The angle of attack of drilling bits are variable according to the type of soil/rock to generate maximum efficiency during drilling.
- ▶ Each drilling bit is positioned at a specific angle on the bottom plate to make sure there is minimum wearing out and breakage of the drilling bits or holders.
- ▶ Unimate manufactured rock drilling buckets or augers have all the bits at the correct angles, which have been found out after a series of drilling tests performed in hard rock to facilitate rotation during drilling.
- ▶ Unimate provides an on-time after sales service when/if required by the customers for any issues.



Features of Unimate Drilling Tools

Kelly box size as per customer demand

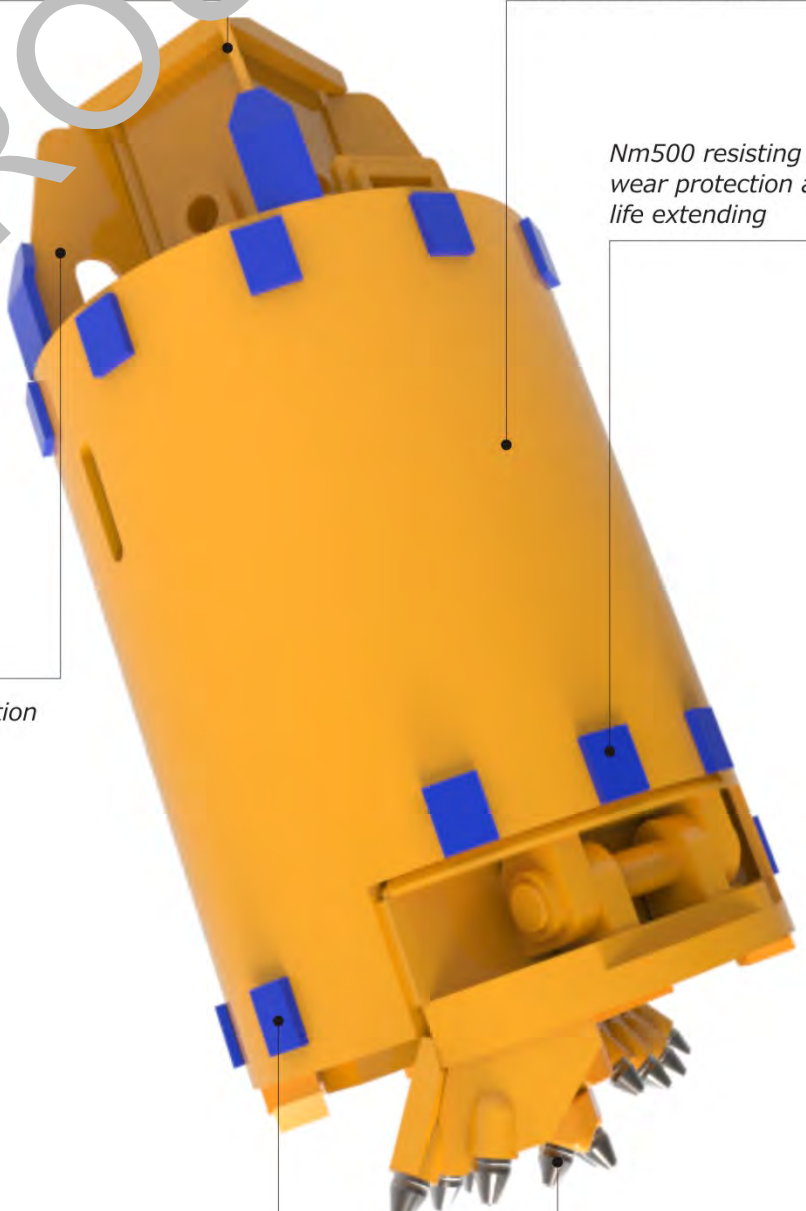
Cylinder roundness with a tolerance between 3~5mm

Nm500 resisting strips for wear protection and service life extending

Throughtout ventilation hole

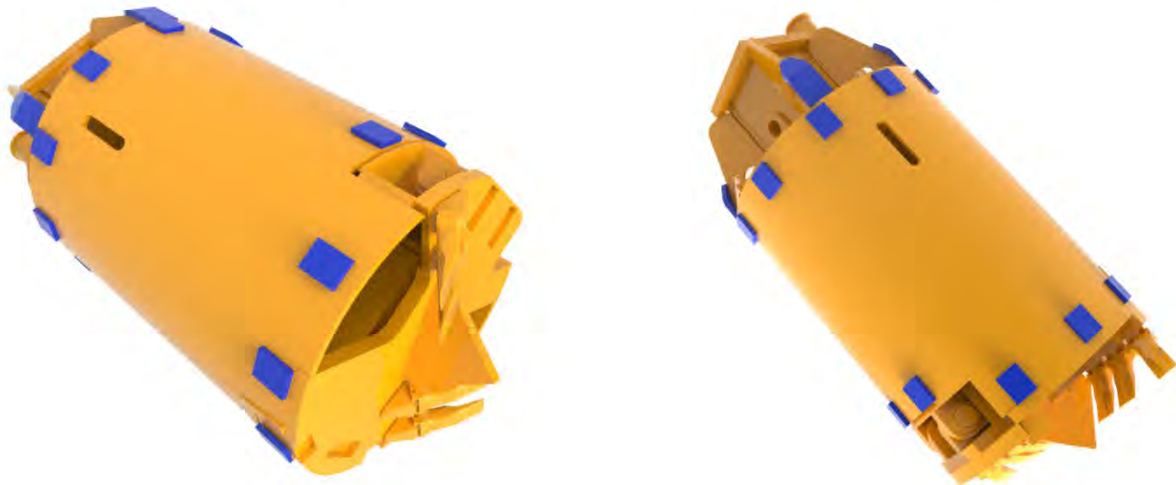
Minimized bottom plates gap of 5~7mm to avoid being stuck

Accurate attack angle of the drilling bits to generate maximum efficiency during drilling



Soil Drilling Bucket

Single-bottom Double Cut Soil Bucket Double-bottom Double Cut Soil Bucket



Main Applications:

- Clay, silt, loose to medium dense sand and gravel, up to coarse gravel.
- Double Cut soil bucket is recommended in cased/uncased and for bigger diameter piles.

Features:

- Cylindrical barrel or Conical barrel(optional).
- Throughout ventilation hole.
- Hard facing strips for wear protection.
- Kelly box 130mm,150mm,200mm (optional).

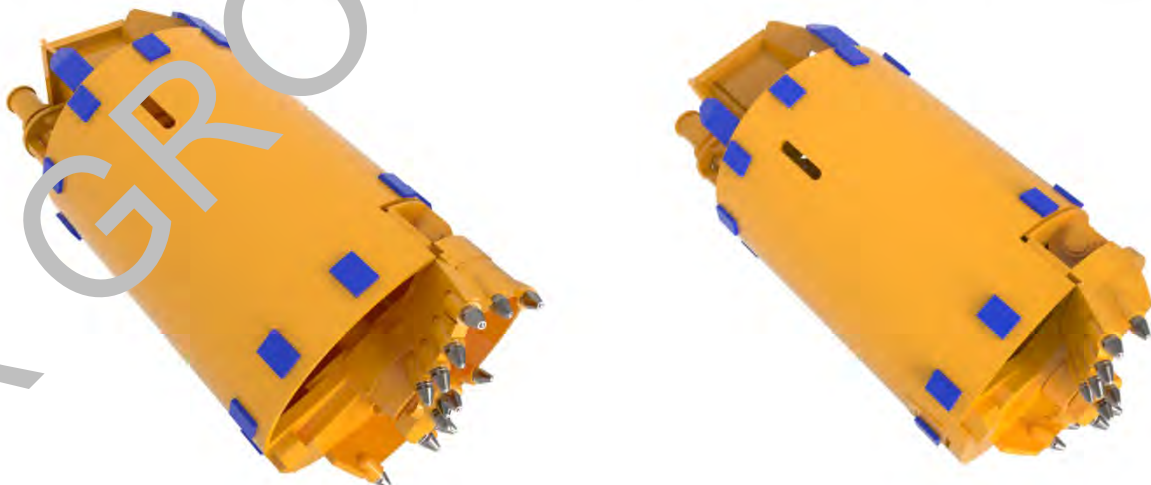


Drilling Dia. mm	Shell Dia. mm	Shell Length mm	Shell Thickness mm	Teeth Qty Pcs	Single cut Double cut	
					Weight kg	Weight kg
600	550	1200	16	4	686	656
700	650	1200	16/20	4	824	784
800	700	1200	16/20	4	959	909
900	800	1200	16/20	6	1120	1051
1000	900	1200	16/20	6	1276	1186
1100	1000	1200	16/20	6	1416	1336
1200	1100	1200	16/20	6	1585	1455
1300	1200	1200	16/20	7	1828	1668
1400	1300	1200	16/20	8	2022	1841
1500	1400	1200	16/20	9	2078	1938
1600	1500	1200	16/20	10	2392	2152
1700	1600	1000	20	10	2401	2271
1800	1700	1000	20	11	3073	2823
2000	1900	800	20	12	3480	3160
2200	2100	800	20	14	4019	3669
2500	2400	800	20	16	4556	4076

*Other sizes can be manufactured as per customer demand

Rock Drilling Bucket

Single Cut Rock Bucket Double Cut Rock Bucket



Main Applications:

- Very dense sand and gravel, weak rock and up to coarse gravel.
- Double cut rock bucket is recommended in uncased bores or for bigger diameters and for secant pile walls.

Features:

- Cylindrical barrel or Conical barrel(optional).
- Throughout ventilation hole.
- Hard facing strips for wear protection.
- Sturdy and wearable rock pilot for accurate positioning.
- Kelly box 130mm,150mm,200mm (optional).

Drilling Dia. mm	Shell Dia. mm	Shell Length mm	Shell Thickness mm	Teeth Qty Pcs	Single cut Double cut	
					Weight kg	Weight kg
600	550	1200	16	7	712	682
700	650	1200	16/20	8	866	826
800	700	1200	16/20	9	971	921
900	800	1200	16/20	12	1130	1061
1000	900	1200	16/20	14	1280	1190
1100	1000	1200	16/20	16	1440	1360
1200	1100	1200	16/20	16	1643	1513
1300	1200	1200	16/20	18	1938	1778
1400	1300	1200	16/20	19	2100	1919
1500	1400	1200	16/20	20	2304	2164
1600	1500	1200	16/20	22	2668	2428
1700	1600	1000	20	24	2535	2405
1800	1700	1000	20	26	3207	2957
2000	1900	800	20	28	3567	3247
2200	2100	800	20	30	4137	3787
2500	2400	800	20	32	4716	4236

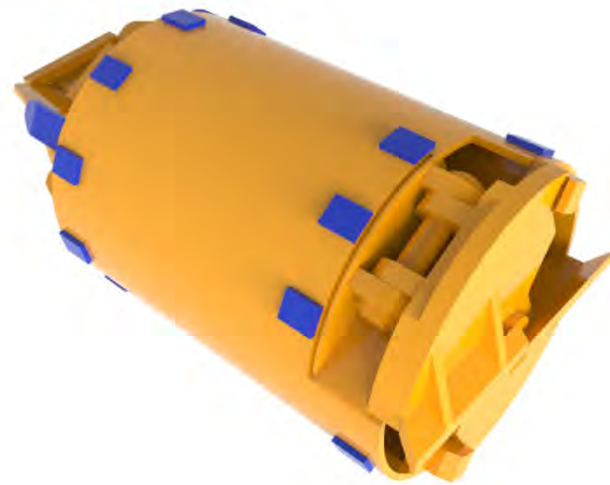
*Other sizes can be manufactured as per customer demand



Drilling Bucket

Cleaning Bucket

Cleaning Bucket



Main Applications:

- Cleaning the bottom of borehole.

Features:

- Cylindrical barrel or Conical barrel(optional).
- Throughout ventilation hole.
- Hard facing strips for wear protection.
- Kelly box 130mm,150mm,200mm (optional).



Drilling Dia. mm	Shell Dia. mm	Shell Length mm	Shell Thickness mm	Weight kg
600	550	1200	16	740
700	650	1200	16/20	837
800	700	1200	16/20	920
900	800	1200	16/20	1024
1000	900	1200	16/20	1109
1100	1000	1200	16/20	1293
1200	1100	1200	16/20	1431
1300	1200	1200	16/20	1591
1400	1300	1200	16/20	1775
1500	1400	1200	16/20	1988
1600	1500	1200	16/20	2194
1700	1600	1000	20	2592
1800	1700	1000	20	2875
2000	1900	800	20	3350
2200	2100	800	20	3829
2500	2400	800	20	4622

*Other sizes can be manufactured as per customer demand

Drilling Auger

Conical Rock Auger

Single Cut Conical Rock Auger

Double Cut Conical Rock Auger



Drilling Dia. mm	Flight Dia. mm	Pitch mm	Flight Length mm	Teeth Qty Pcs	Single cut	Double cut
					Weight kg	Weight kg
600	550	600	1200	22	438	537
700	650	600	1200	22	467	596
800	750	600	1200	24	512	708
900	850	600	1200	26	586	775
1000	950	600	1200	28	633	871
1100	1050	600	1200	30	674	958
1200	1150	600	1200	32	718	1047
1300	1250	600	1200	32	767	1145
1400	1350	600	1200	34	821	1253
1500	1450	600	1200	36	875	1367
1800	1750	600	1200	40	1081	1766

*Other sizes can be manufactured as per customer demand



Main Applications:

- Medium to strong rock (15-60 Mpa).
- Double Cut Auger is recommended in uncased bores or for bigger diameters.

Features:

- Sturdy and wearable forging steel pilot for accurate positioning.
- Hard facing strips on flights for wear protection.
- Kelly box 130mm,150mm,200mm (optional).

Flat Rock Auger

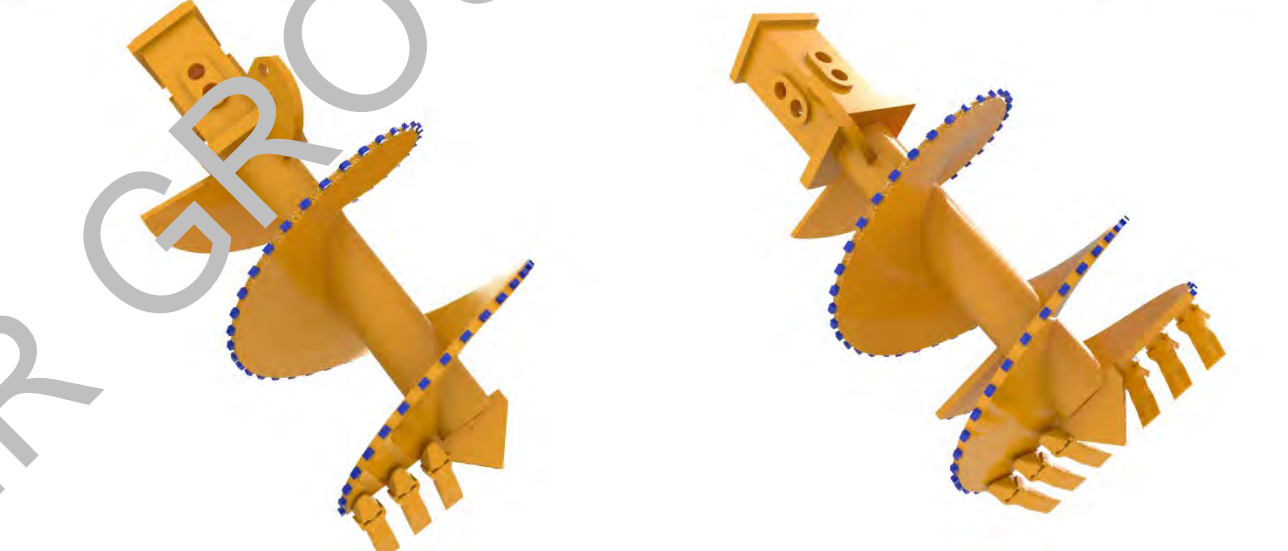
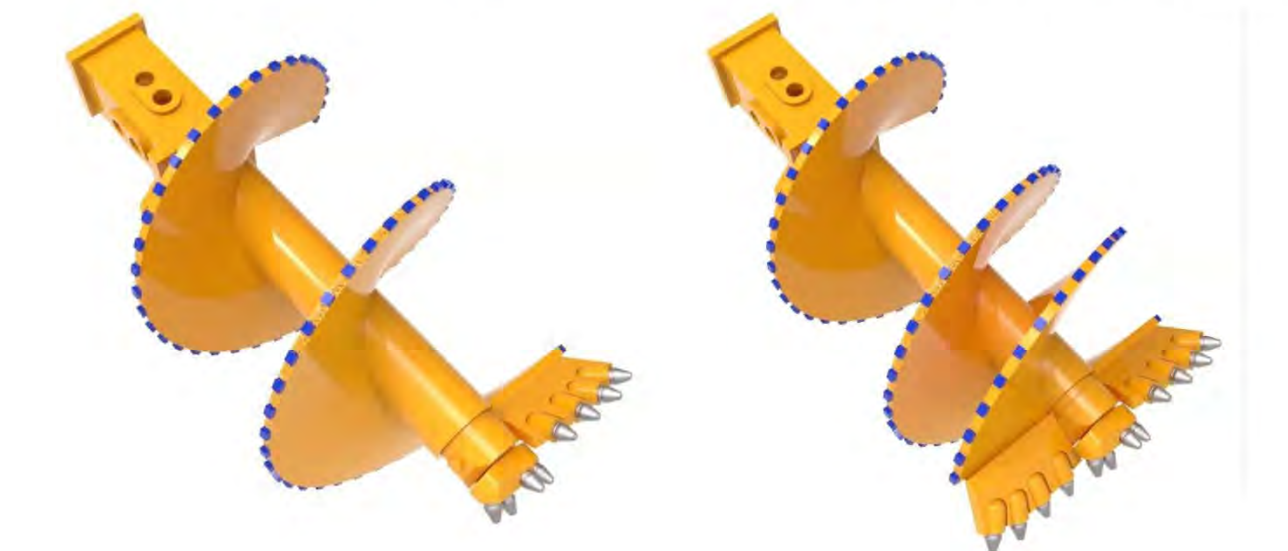
Flat Soil Auger

Single Cut Rock Auger

Double Cut Rock Auger

Single Cut Soil Auger

Double Cut Soil Auger



Drilling Dia. mm	Flight Dia. mm	Pitch mm	Flight Length mm	Teeth Qty Pcs	Single cut Double cut	
					Weight kg	Weight kg
600	550	600	1200	6	481	591
700	650	600	1200	8	519	630
800	750	600	1200	10	560	700
900	850	600	1200	12	614	802
1000	950	600	1200	12	675	910
1100	1050	600	1200	14	741	1029
1200	1150	600	1200	16	820	1153
1300	1250	600	1200	16	907	1293
1400	1350	600	1200	17	972	1447
1500	1450	600	1200	18	1059	1606
1800	1750	600	1200	22	1364	2155

*Other sizes can be manufactured as per customer demand

Main Application:

- Very dense sand and gravel, weak rock(<5Mpa).
- Double cut auger is recommended in uncased bores or for bigger diameters and secant pile walls.

Features:

- Sturdy and wearable forging steel pilot for accurate positioning.
- Hard facing strips on flights for wear protection. Kelly box 130mm,150mm,200mm (optional).

Drilling Dia. mm	Flight Dia. mm	Pitch mm	Flight Length mm	Teeth Qty Pcs	Single cut Double cut	
					Weight kg	Weight kg
600	550	600	1200	4	478	561
700	650	600	1200	4	516	630
800	750	600	1200	4	554	700
900	850	600	1200	5	610	796
1000	950	600	1200	6	668	904
1100	1050	600	1200	6	732	1016
1200	1150	600	1200	6	800	1139
1300	1250	600	1200	7	879	1279
1400	1350	600	1200	8	959	1429
1500	1450	600	1200	9	1050	1590
1800	1750	600	1200	11	1351	2132

*Other sizes can be manufactured as per customer demand

Main Applications:

- Soft to stiff silt and clay, loose to medium dense sand and gravel.
- Double cut soil auger is recommended for uncased bores or for bigger diameters.

Features:

- Fish-tail Pilot for accurate positioning.
- Hard-facing strips on flights for wear protection.
- Kelly box 130mm,150mm,200mm (optional).



Core Barrel with Bullet Teeth



Drilling Dia. mm	Shell Dia. mm	Shell Length mm	Shell Thickness mm	Teeth Qty pcs	Weight kg
600	520	1200	16+30	6	500
700	620	1200	16+30	9	572
800	720	1200	16+30	9	660
900	820	1200	16+30	12	730
1000	920	1200	16+30	12	810
1100	1020	1200	16+30	15	861
1200	1120	1200	16+30	15	1000
1300	1220	1200	16+30	15	1052
1400	1320	1200	16+30	18	1180
1500	1420	1200	16+30	18	1240
1600	1520	1200	16+30	21	1350
1700	1620	1000	20+40	24	1635
1800	1720	1000	20+40	24	1690
2000	1920	800	20+40	27	1770
2200	2120	800	20+40	30	1950
2500	2420	800	20+40	33	2450

*Other sizes can be manufactured as per customer demand

Cross Cutter Core Barrel



Drilling Dia. mm	Shell Dia. mm	Shell Length mm	Shell Thickness mm	Teeth Qty pcs	Weight kg
600	520	1200	16+20	11	615
700	620	1200	16+20	19	678
800	720	1200	16+20	19	768
900	820	1200	16+20	25	843
1000	920	1200	16+20	25	984
1100	1020	1200	16+20	28	1038
1200	1120	1200	16+20	39	1216
1300	1220	1200	16+20	39	1270
1400	1320	1200	16+20	42	1414
1500	1420	1200	16+20	46	1487
1600	1520	1200	16+20	49	1614
1700	1620	1000	20	56	1922
1800	1720	1000	20	56	1994
2000	1920	800	20	67	2090
2200	2120	800	20	74	2194
2500	2420	800	20	85	2817

*Other sizes can be manufactured as per customer demand

Core Barrel with Roller Bits



Drilling Dia. mm	Shell Dia. mm	Shell Length mm	Shell Thickness mm	Teeth Qty pcs	Weight kg
600	520	1200	16+30	4	500
700	600	1200	16+30	4	621
800	700	1200	16+30	4	734
900	800	1200	16+30	6	794
1000	900	1200	16+30	8	908
1100	1000	1200	16+30	8	1006
1200	1100	1200	16+30	8	1089
1300	1200	1200	16+30	10	1175
1400	1300	1200	16+30	12	1327
1500	1400	1200	16+30	12	1387
1600	1500	1200	16+30	14	1522
1700	1600	1000	20+40	16	1831
1800	1700	1000	20+40	16	1886
2000	1900	800	20+40	18	1991
2200	2100	800	20+40	18	2162
2500	2400	800	20+40	20	2684

*Other sizes can be manufactured as per customer demand

Main Applications:

Core barrel with bullet teeth is used for cutting an annular ring in rock or concrete (also reinforced concrete).
Core barrel with roller bits is used in very strong rock formations (compressive strength> 100 Mpa).
Cross Cutter Core barrel is mainly used to break rock cores which remain in the borehole after using a core barrel, also suitable for drilling hard, jointed rock(< 100Mpa) and for penetrating through layers containing boulders.

Features:

- ▶ Cutting ring with staggered arrangement of round shank chisels.
- ▶ Chisel holders are welded to the base body. The round shank chisels can be easily replaced.
- ▶ Kelly box 130mm,150mm,200mm (optional).

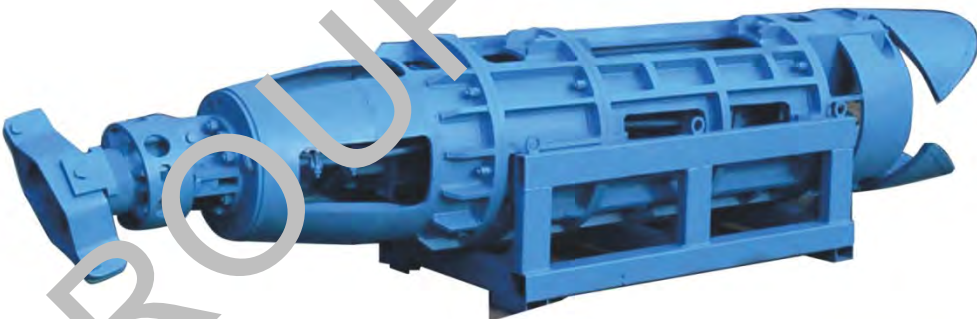
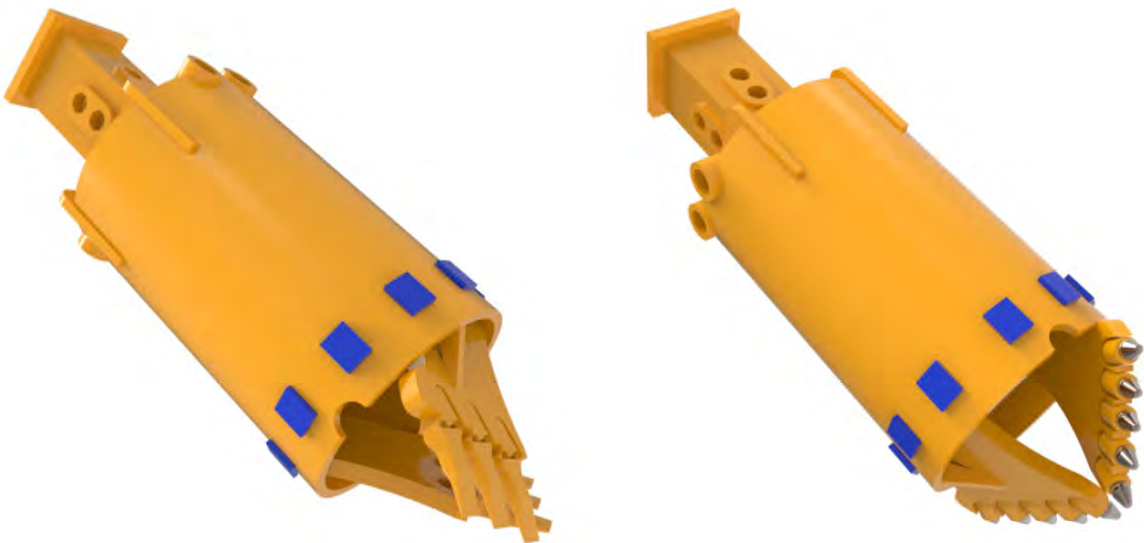


Centrifugal Bucket

Hammer Grab

Centrifugal Soil Bucket

Centrifugal Rock Bucket



Heavy Duty Model

Model	Casing Dia. mm	Jaw Capa. L(mm)	Length(mm)		Weight(kg)	
			Single	Double	Single	Double
UM-H1350A	1500	800	4824	4291	7000	6200
UM-H1650A	1800	1100	4950	4417	8000	7200
UM-H1800A	2000	1200	5012	4479	8500	7700
UM-H1800B	2000	1200	5722	5146	11000	10100
UM-H2250B	2500	1800	5911	5335	12700	11800
UM-H2750B	3000	2300	6045	5469	14000	13100

Standard Model

Model	Casing Dia. mm	Jaw Capa. L(mm)	Length(mm)		Weight(kg)	
			Single	Double	Single	Double
UM-H1050S	1200	340	4151	3819	3500	3200
UM-H1350S	1500	830	4242	3910	4800	4500
UM-H1800S	2000	1150	4607	4275	6500	6200

Ropeless Model

Model	Casing Dia. mm	Jaw Capa. L(mm)	Length(mm)		Weight(kg)	
			Single	Double	Single	Double
UM-H0805R	1000	180	4152	3592	4500	3400
UM-H1050R	1200	340	4295	3762	5500	4700
UM-H1350R	1500	830	4423	3890	6800	6000
UM-H1800R	2000	1150	5783	5250	8200	7400



Main Applications:

- ▶ Drilling in clay, silt and loose to medium dense sand and gravel.

Features:

- ▶ Large inlet of soil open shell design, easy to dump spoil to increase the drilling efficiency.
- ▶ Super high strength structure and guide plate to increase the working life of bucket.
- ▶ Wearing strips arranged on the surface of bucket for wear protection.
- ▶ Kelly box 130mm,150mm,200mm (optional).

Centrifugal Soil Bucket

Drilling Dia. mm	Shell Dia. mm	Shell Length mm	Shell Thickness mm	Teeth Qty pcs	Weight kg
600	520	1200	25	8	836
700	620	1200	30	8	1100
800	680	1200	30	8	1240
900	780	1200	30	10	1395
1000	860	1200	30+40	10	1754
1200	1060	1200	30+40	12	2362

*Other sizes can be manufactured as per customer demand

Centrifugal Rock Bucket

Drilling Dia. mm	Shell Dia. mm	Shell Length mm	Shell Thickness mm	Teeth Qty pcs	Weight kg
600	520	1200	25	7	836
700	620	1200	30	8	1100
800	680	1200	30	8	1240
900	780	1200	30	10	1395
1000	860	1200	30+40	10	1754
1200	1060	1200	30+40	12	2362

*Other sizes can be manufactured as per customer demand

Wear Parts for Drilling Tools

Soil Teeth & Holder



Rock Teeth& Holder



Bauer Flat Teeth& Holder



Roller Bits



Diaphragm Wall Trenching Cutter Teet'



Pilot Bits



Casings

The casings are designed to perform cased holes, especially for the construction of bored piles by rotary drilling rigs. The casing joints with high machining accuracy guarantee a fast replacement and bolting of the casings as well as the best force transmission effect.

Unimate offers two types of casings:

- Double-walled casings
- Single-walled casings

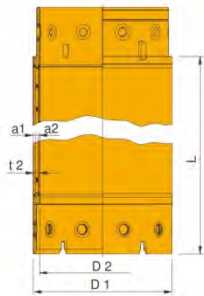
Double-walled casings can be used universally, as they are designed especially for transmitting high rotational and vertical forces as created by the rotary drives and oscillators. The use of double-walled casings ensures a flush drill string. Single-walled casings can be used for applications where weight reduction is important.



Double-walled Casings

Double-walled casings technical data

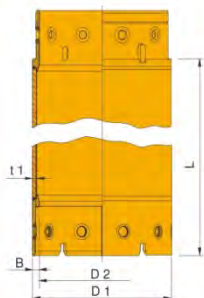
Diameter D1/D2 (mm)	Length						Casing-wall Thickness-1 a1 (mm)	Casing-wall Thickness-2 a2 (mm)	Total Thickness t2 (mm)	Bolt QTY bolts (nos)
	1m	2m	3m	4m	5m	6m				
620/540	403	739	1074	1411	1747	2081	12	8	40	8
750/670	492	902	1311	1722	2131	2540	12	8	40	10
880/800	585	1069	1552	2036	2520	3005	12	8	40	10
1000/920	669	1221	1773	2328	2877	3429	12	8	40	10
1180/1100	844	1580	2316	3052	3787	4522	16	8	40	12
1200/1120	872	1620	2370	3120	3870	4620	16	8	40	12
1300/1220	933	1746	2558	3372	4184	4996	16	8	40	12
1500/1400	1433	2628	3817	5009	6210	7393	20	10	50	12
1800/1700	1730	3166	4602	6038	7474	8910	20	10	50	16
2000/1880	2450	4280	6110	7940	9770	11600	20	15	60	12
2200/2080	2700	4720	6740	8760	10780	12800	20	15	60	12
2500/2380	2960	5240	7520	9800	12080	14360	20	15	60	16



Single-walled Casings

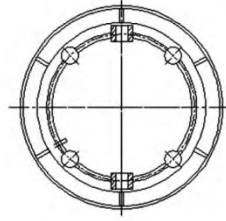
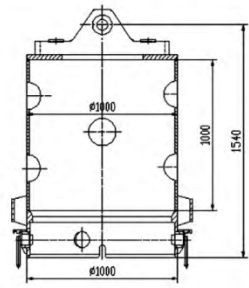
Single-walled casings technical data

Diameter D1/D2 (mm)	Length						Casing-wall Thickness t1 (mm)	Casing-wall Thickness B (mm)	Bolt QTY Bolts (Nos)
	1m	2m	3m	4m	5m	6m			
1300/1220	845	1475	2105	2735	3365	3995	20	40	12
1500/1400	1310	2220	3130	4040	4950	5860	25	50	12
1800/1700	1580	2675	3770	4865	5960	7055	25	50	16
2000/1880	2140	3355	4570	5785	7000	8215	25	50	12
2200/2080	2350	3690	5030	6370	7710	9050	25	60	12
2500/2380	2575	4100	5625	7150	8675	10200	25	60	16

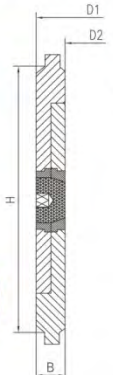


Unimate also offers accessories like casing drive adapter, casing joints and casing shoes/ blocks etc..

Casing Drive Adapter



Casing Joints and Conical Bolts



Dimensions				Bolts and inserts				Keys		O-Ring
D1/D2	H	B	weight	Bolt	thread ring	conical ring		b2		
mm	mm	mm	kg	qty	Type	quantity	quantity	qty	mm	mm
620/540	340	40	179	8	I	8	8	4	40	10×535
750/670	340	40	218	10	I	10	10	4	40	10×665
880/800	340	40	261	10	I	10	10	4	40	10×790
1000/920	340	40	300	10	I	10	10	4	40	10×910
1180/1100	340	40	355	12	I	12	12	4	40	10×1090
1200/1120	340	40	375	12	I	12	12	4	40	10×1100
1300/1200	340	40	393	12	I	12	12	4	40	10×1210
1500/1400	490	50	827	12	II	12	12	4	60	10×1400
1800/1700	490	50	998	16	II	16	16	4	60	10×1600
2000/1880	560	60	1520	12	III	12	12	6	90	10×1800
2200/2080	560	60	1670	12	III	12	12	6	90	10×2070
2500/2380	560	60	1800	16	III	16	16	8	90	10×2350

Casing joints



Thread ring

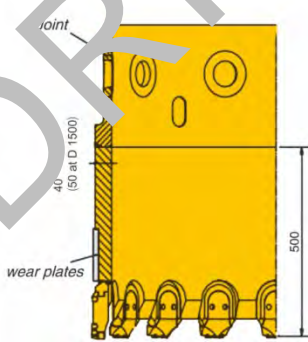
Conical ring

Bolt

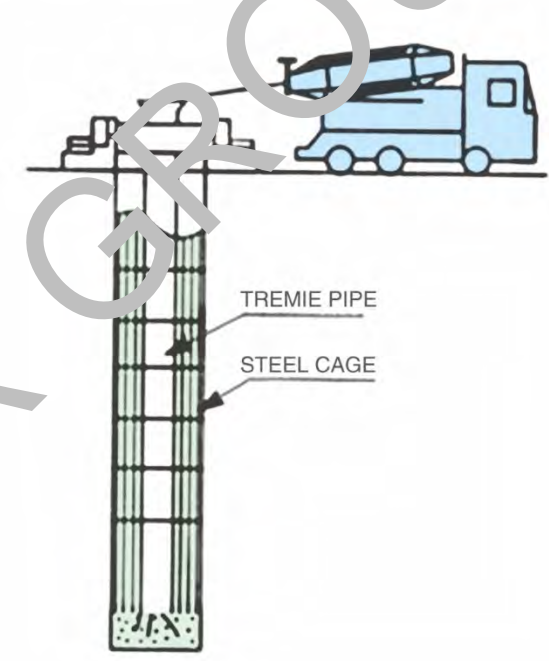
Casing Shoes (with pin-on teeth WS39)

The development of a casing shoe fitted with pin-on teeth is the result of years of experience of drilling casing boreholes in difficult soil formations. The casing shoe is particularly suitable for formation of rock sockets and the construction of bore pile walls.

Diameter	620	750	880	1000	1180	1300	1500
No of teeth	14	16	18	18	20	24	30
Weight(kg)	309	374	439	500	589	653	955



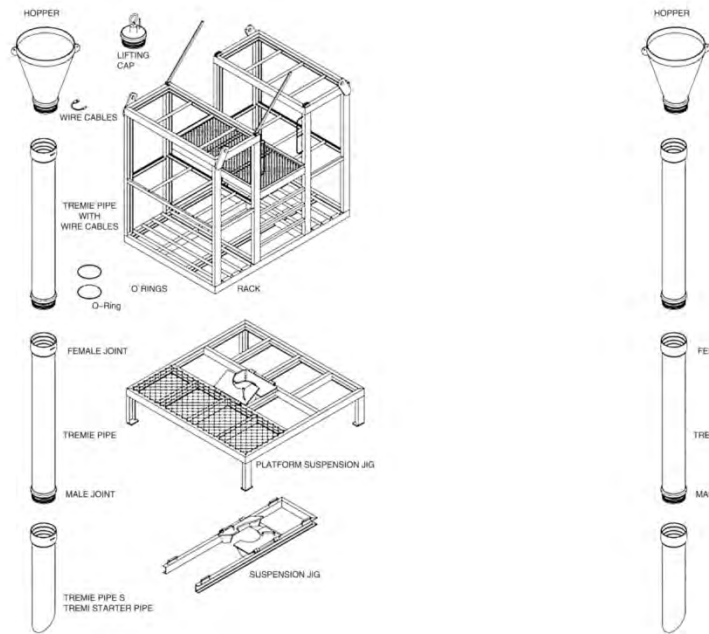
Tremie pipes are normally used to pour concrete into a drilled pile, after the steel cage reinforcement is placed in operation, to avoid concrete pile breakage or gaps.



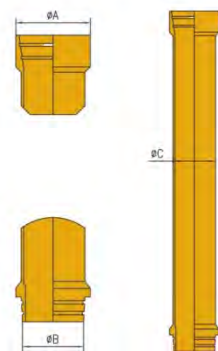
During the operations they are lowered inside and through the steel cage reinforcement to protect concrete from soil contamination water filtering and to avoid any possible concrete quality corruption. Unimate tremie pipes are made of quality drawn steel plates in order to guarantee high resistance. Pipes sections can be connected by two kinds of coupling systems: threaded joints and wire cable joints.



While threaded tremie pipes are equipped with male/female joints with thread, the wire cable system is designed for quick assembly/ dismantling of the various pipe sections during the concreting operations. Using wire cables joints water and mud penetration is prevented by O-ring seals applied in between male and female joints.

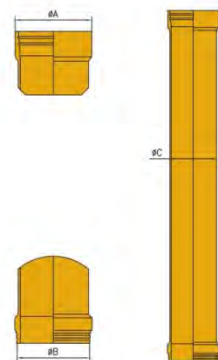


Tremie Pipes with Wire Cables



ϕA Female joint	ϕB Male joint	ϕC Tremie Pipe	Tremie Pipe Thickness	Weight For 1m
mm	mm	mm	mm	kg
274	248	219	3	40
325	294	260	3	48
374	338	300	3	57
Other dimensions are available on request				

Threaded Tremie Pipes



ϕA Female joint	ϕB Male joint	ϕC Tremie Pipe	Tremie Pipe Thickness	Weight For 1m
mm	mm	mm	mm	kg
260	240	210	3	30
306	286	260	3	32
345	322	300	3	40
Other dimensions are available on request				

DRILLMASTER

Headquarters

Drillmaster Engineering Technology Co.,Ltd

More than a drilling tools supplier, Drillmaster is a leading solution provider for foundation engineering. With decades of years' experience in the R&D, fabrication and sales of piling equipments: pile breaker, casing rotator, oscillator, drill bits, etc, Drillmaster has established a complete factory production system. Unimate, Unidrill and Fountech are subsidiaries of Drillmaster, respectively responsible for the R&D and production of different foundation engineering products.



Unimate Heavy Industry Co.,Ltd

With factory in Fujian, China, 10 years of production experience, specializes in the production of drilling tools, casings and drilling accessories as well as the rent of drill rig and sales of used drill rig.



Unidrill Technology Co.,Ltd

Factories are located in Hebei and Wuhan respectively, mainly responsible for the production of Kelly Bars, Drill Tools and Desander, well known by its strict quality control.



Fountech Construction Machinery Co.,Ltd

With factory in Jiangsu, China, mainly responsible for the production and sales of micro drill rig and used drill rig.