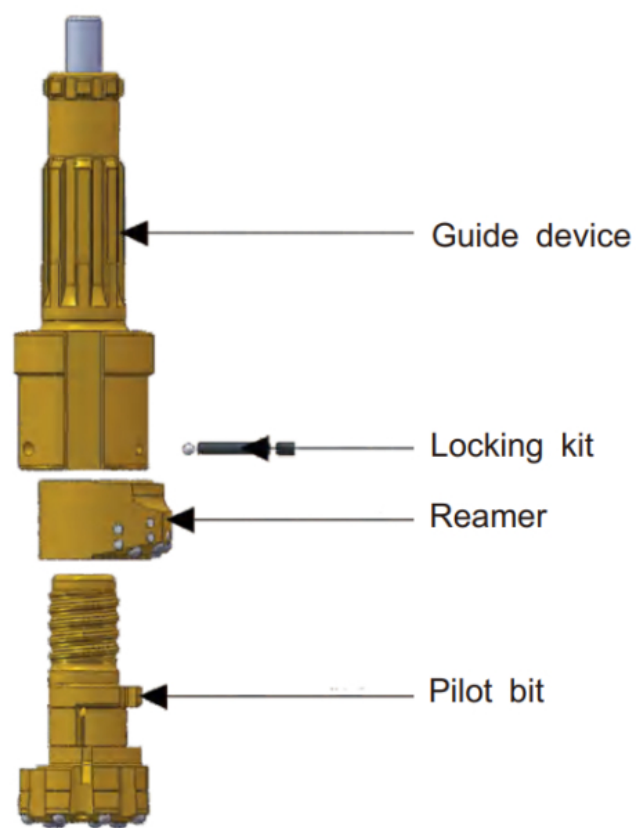


HUNAN POWERDRILLS ROCK MACHINERY CO., LTD.

ECCENTRIC CASING DRILLING SYSTEM (ODEX)

Structure of ODEX casing system



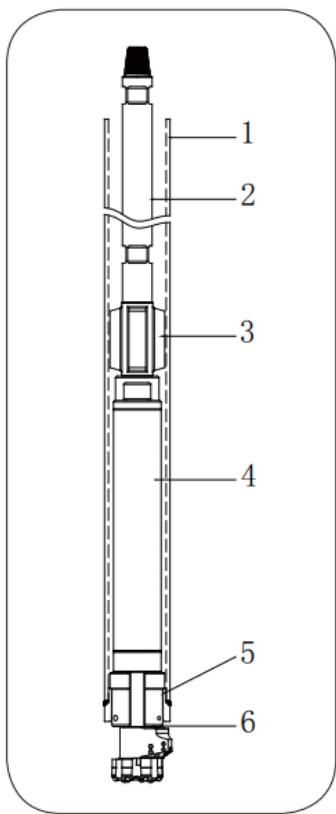
Features

The surface of the stratum is mostly covered by loose materials, such as soil, clay, weathered rock, sand and stone particles, etc. ODEX can drill above formation with its simple structure, easy operation and reliable performance.

Structure Features

The reamer is added more carbides, can ensure its long service life. The guide device thread is design more reasonable so helpful for disassembly

Related parts list

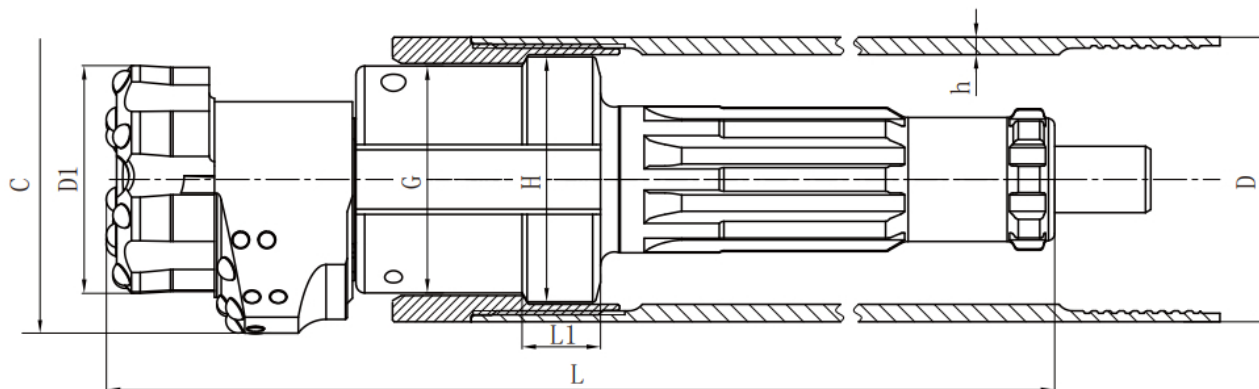
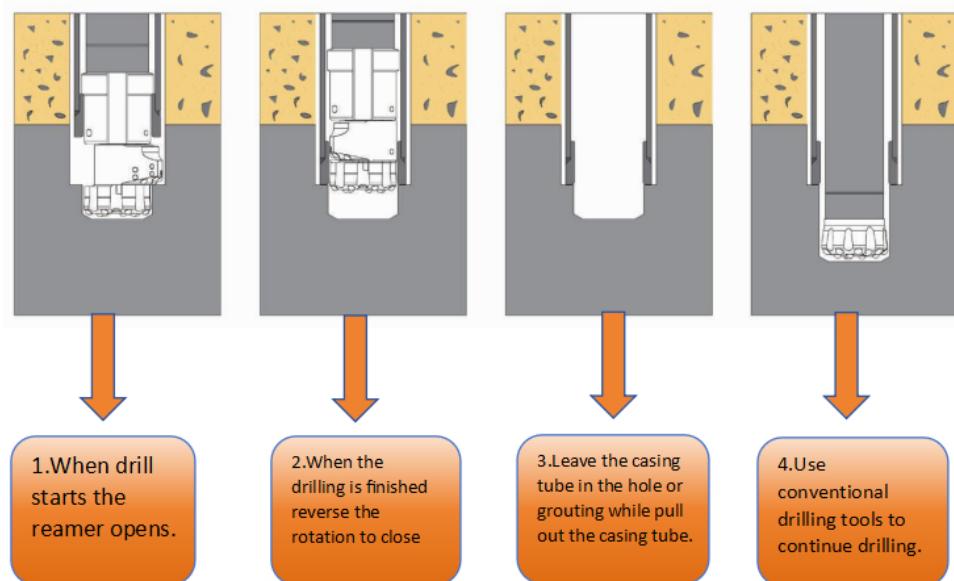


No.	Name	Description
1	Casing pipe	A. Thread is left model and match to casing shoe, B- Welding to casing shoe
2	Drill pipe	Thread: API (REG/ IF)/NC
3	Stablizer	The thread is same as drill pipe
4	DTH hammer	API REG Thread
5	Casing shoe	a. Thread connection, left hand b. Welding
6	ODEX	See the detailed parameters in following table

HUNAN POWERDRILLS ROCK MACHINERY CO., LTD.

ECENTRIC CASING DRILLING SYSTEM (ODEX)

Working procedure



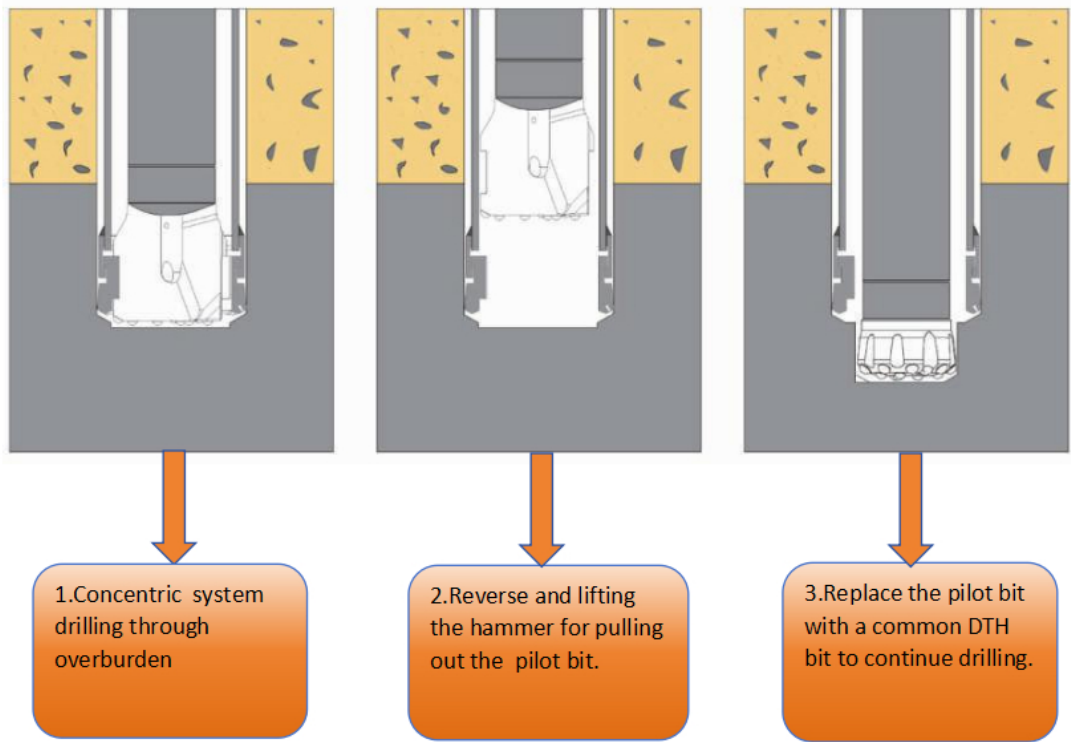
Model	O.D. of casing tube (mm)	I.D. of casing tube (mm)	Thickness (mm)	Guide device max diameter (mm)	Reamed diameters (mm)	Min.I.D. of casing tube (mm)	Max O.D. of normal bit (mm)	Mayched DTH hammer	Weight (kg)
ODEX 85	108	94	7	92	117	86	85	3.5"	11.6
ODEX 90	114	101	6.5	99	125	91	90	3.5"	13.5
ODEX 98	127	108	9.5	106	138	99.5	98	3.5"	15.5
ODEX 115	146	125	10	123.5	155	117	115	4"	25/28
ODEX 140	168	148	10	146	180	138	136	5"	42
	168	153	7.5	146	185	142.5	141	5"	43
ODEX145	178	158	10	156	192	148	146	5"	45
ODEX 152	183	163	10	161	196	153	151	5" 6'	48/56
ODEX 165	194	174	10	172	206	162	160	6"	62
	194	181	6.5	179	206	170	168	6"	65
ODEX 190	219	199	10	196	237	187	185	6"	76
	219	207	6	205	237	192	190	6"	78
ODEX 208	245	225	10	222	263	210	208	8"	110
ODEX 240	273	253	10	251	305	241	239	8"	136
	273	257	8	255	305	241	239	8"	138
ODEX 280	325	304	10.5	302	350	282	280	8" 10" 12"	210/226/246

HUNAN POWERDRILLS ROCK MACHINERY CO., LTD.

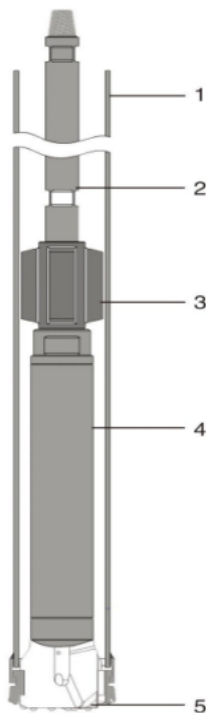
CONCENTRIC CASING DRILLING SYSTEM WITH INTERGRATED RING BIT AND CASING SHOE

It is suitable for overburden with complex geological conditions, such as pebble, fissure, dry stone, Boulder, construction backfill waste, etc.
Its advantages as follow

- Straightness:** The straightness of the hole can be ensured under different geological structures.
- Adaptability:** In complex geological structures, such as pebbles and construction waste, the efficiency of drilling can be guaranteed.
- Lower torque:** Compared with the eccentric drilling system, the torque is smaller.
- Easy to unlock and relock:** Easy to relock after unlocking.
- Drilling at any angle:** Concentric drilling tools can be drilled in vertical, horizontal and inclined conditions.
- Environmental:** Compared with eccentric drilling tool, it is more suitable for urban construction because of its smooth drilling, small vibration and low noise.
- Application:** Concentric drilling tools are mainly used in pile foundation and anchoring engineering.



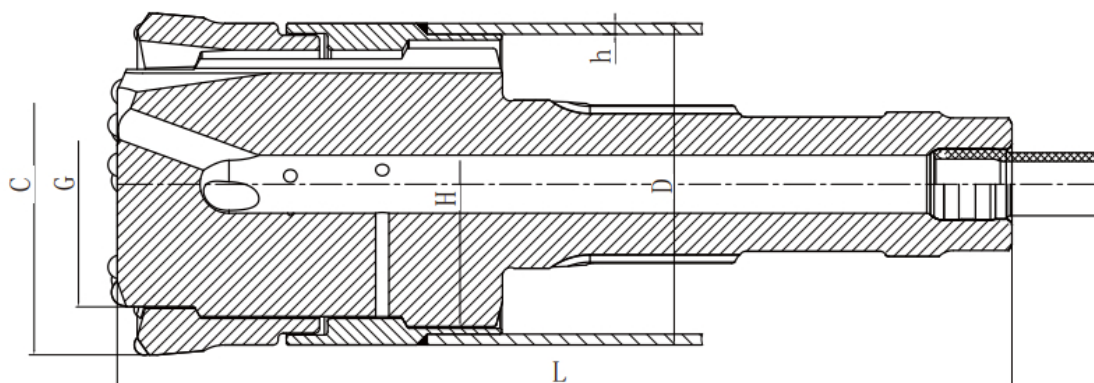
Related parts list



No.	Name	Description
1	Casing pipe	A. Thread is left model and match to casing shoe, B. Welding to casing shoe
2	Drill pipe	Thread: API (REG/ IF)/NC
3	Stablizer	The thread is same as drill pipe
4	DTH hammer	API REG Thread
5	Casing shoe	a. Thread connection, left hand b. Welding
6	Concentric overburden casing system	See the detailed parameters in following table

HUNAN POWERDRILLS ROCK MACHINERY CO., LTD.

CONCENTRIC CASING DRILLING SYSTEM WITH INTERGRATED RING BIT AND CASING SHOE



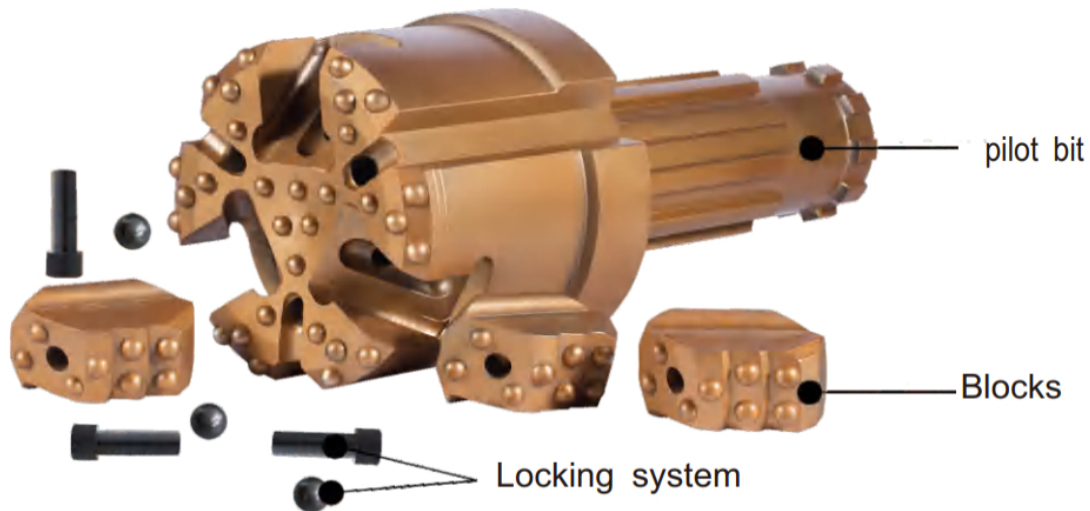
Model	D Outer diameter of casing tube (mm)	Inner diameter of casing tube (mm)	h Thickness (mm)	H Maximum outer diameter of pilot bit (mm)	C Outer diameter of ring bit (mm)	G Maximum outer diameter of common bit (mm)	Hammer shank	Weight (kg)
108	108	94	7	92	118	75	3.5"	10.5
114	114	101	6.5	99	126	82	3.5"	14
127	127	108	9.5	106	138	86	3.5"	18
140	140	114	9	120	151	101	4"	21
146	146	126	10	124	156	105	4"	23.5
168	168	148	10	146	184	125	5"	27.5
178	178	158	10	156	192	140	5"	42
194	194	174	10	172	206	148	6"	58
219	219	198	10.5	196	234	170	6"	75
245	245	219.6	12.7	218	260	186	6"	105
273	273	249.6	12.7	245	298	203	8"	122
325	325	299.6	12.7	295	350	255	8" 10"	135
406	406	380.6	12.7	378	438	340	12"	420
508	508	482.6	12.7	478	538	445	18"	522
560	560	534.6	12.7	521	580	495	18"	608
610	610	631.6	14.2	574	630	514	18"	703
660	660	682.6	14.2	618	680	590	18"	788
722	722	730	14.2	674	731	606	18"	934.5
762	762	781	16	724	782	669	18"	1247
813	813	882	16	769	835	709	24"	1380
914	914	984	16	851	935	818	24"	1657
1016	1016	1180	20	973	1040	913	28"	2100
1220	1220	1510	20	1174	1250	1136	28"	3270
1550	1550			1504	1580	1464	36"	5405

HUNAN POWERDRILLS ROCK MACHINERY CO., LTD.

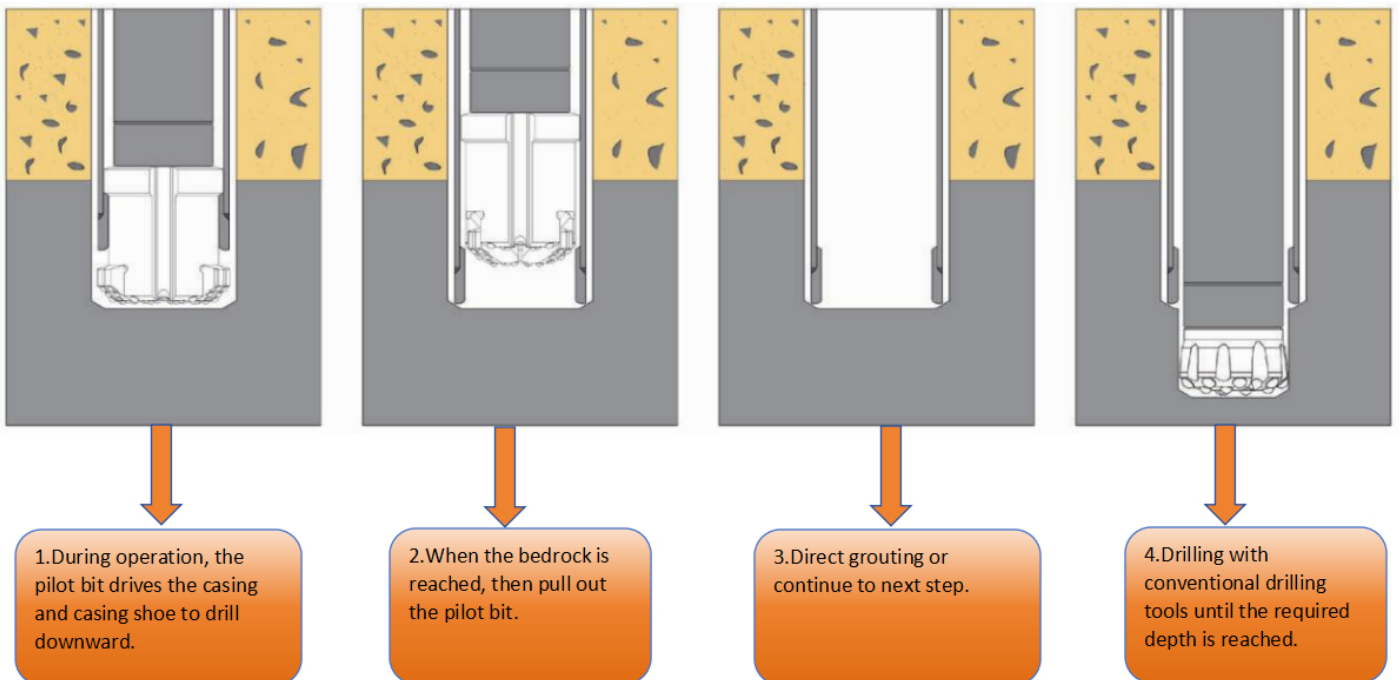
CONCENTRIC CASING DRILLING SYSTEM WITH BLOCKS

- 1.The material of joint tools is better than casing tube and after heat treatment, the connection is reliable.
- 2.The casing shoe is heat-treated to extend the service life.
- 3.The blocks and locking kit are strengthened and have good comprehensive performance
- 4.Application fields: pile foundation engineering, slope support engineering

Component parts



Operation procedure



HUNAN POWERDRILLS ROCK MACHINERY CO., LTD.

CONCENTRIC CASING DRILLING SYSTEM WITH BLOCKS

Design advantages

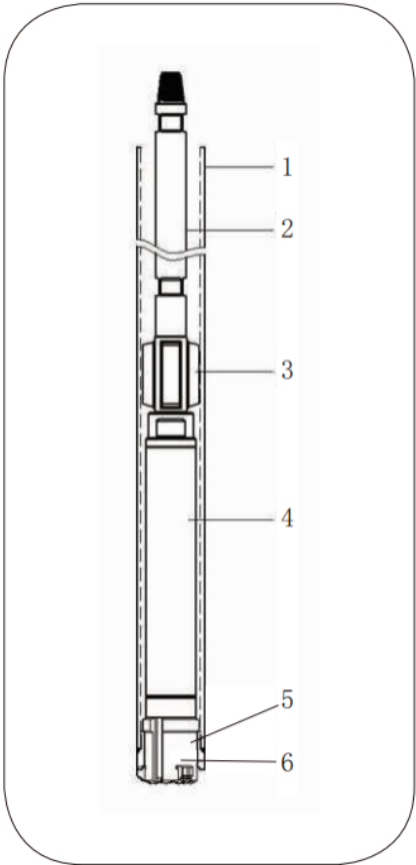
Reliable performance, easy retrieval.



Large inclined angle of blocks to increase the drilling stability.

The inclined plane design on the back of the block can guide the drilling and easy for retrieval.

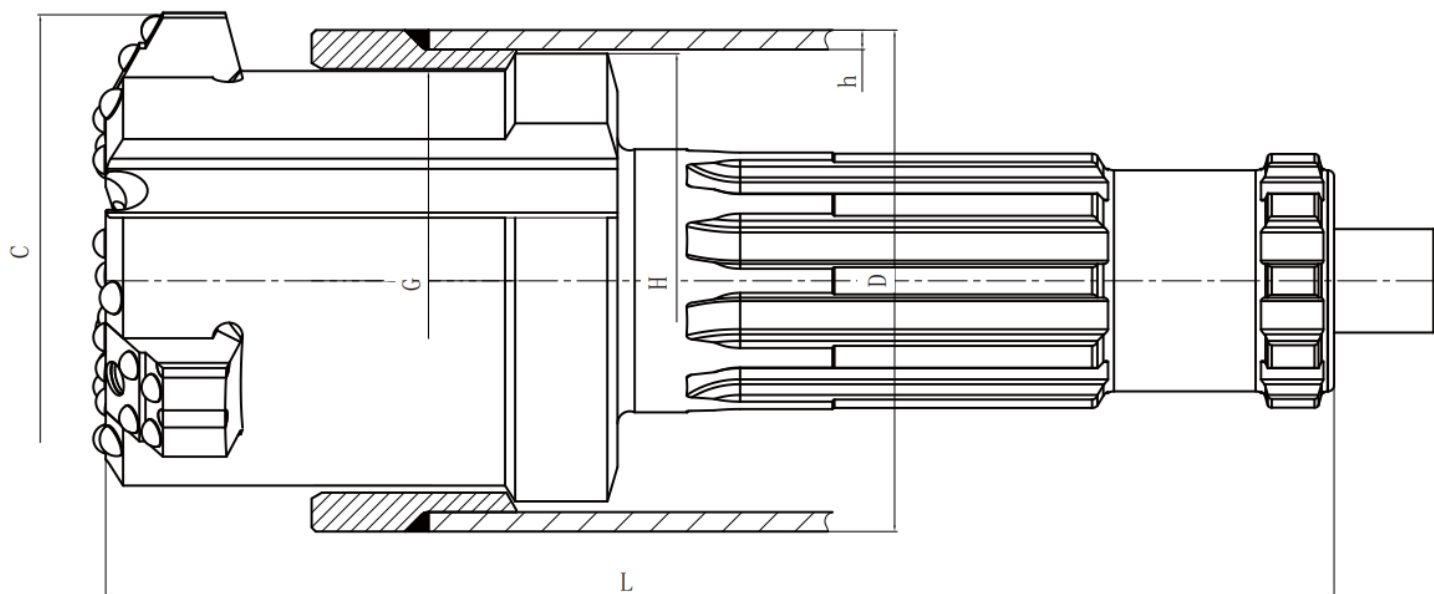
Related parts list



No.	Items	Description
1	Casing Tube	a.Threaded casing tube,left hand;
		b.Welded casing tube.
2	Drill pipe	Thread:API (REG/ IF)/NC
3	Stablizer	Thread of stabilizer is same as drill pipe
4	DTH hammer	Thread:API REG
5	Casing shoe	a.Threaded casing tube,left hand;
6		b. Welded casing shoe
7	Wings system	Parameters are shown in the table below.

HUNAN POWERDRILLS ROCK MACHINERY CO., LTD.

CONCENTRIC CASING DRILLING SYSTEM WITH BLOCKS

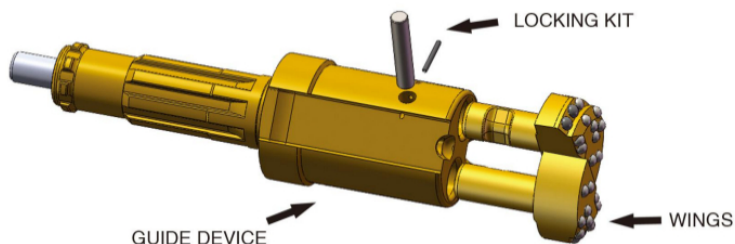


Model	D	I.D. of casing tube (mm)	h	H	C	G	Quantity of blocks	DTH hammer	Weight (kg)
	O.D. of casing tube (mm)		Thickness (mm)	Guide device Max. Dia. (mm)	Reamed Dia. (mm)	Min. O.D. of casing shoe (mm)			
T185	219	199	10	196	234	185	3	6"	61
T210	245	225	10	222	260	210	3	8"	88
T240	273	253	10	251	305	240	3	8"	97
T280	325	305	10	302	346	282	3	8" or 10"	115
T305	355	335	10	332	376	305	3	12"	214
T360	406	382	12	380	432	360	4	12"	254
T412	460	436	12	434	485	412	4	14"	415
T432	480	454.6	12.7	450	505	432	4	14"	415
T454	508	482.6	12.7	479	534	454	4	18"	630
T510	560	534.6	12.7	530	590	510	4	18"	730
T551	610	584.6	12.7	582	639	551	4	18"	895
T600	660	632	14	628	684	600	4	18" or 24"	946
T645	711	679	16	675	741	645	4	24"	1210
T694	762	730	16	726	800	694	4	24"	1595
T750	813	781	16	776	845	752	6	24"	2436
T850	914	882	16	878	966	850	6	28"	2756
T950	1016	984	16	980	1060	956	6	28"	3076

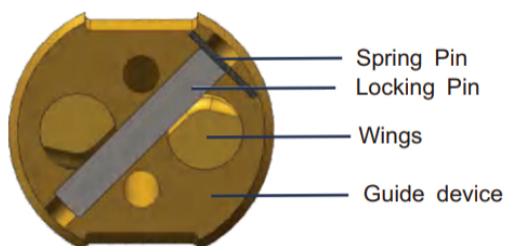
HUNAN POWERDRILLS ROCK MACHINERY CO., LTD.

CONCENTRIC CASING DRILLING SYSTEM WITH DOUBLE WINGS

It is suitable for covering layers with loose materials, such as soil, clay, weathered rock, and sand particles.



Design features



***The locking pin is strengthened by heat treatment to extend its service life

***Improved locking kit prevents the wings from falling off by dropping of locking pin.

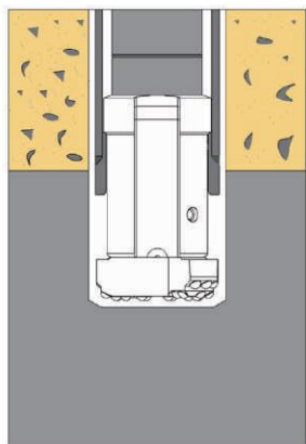
Advantages

***The material of joint tools is better than casing tube and after heat treatment, the connection is reliable.

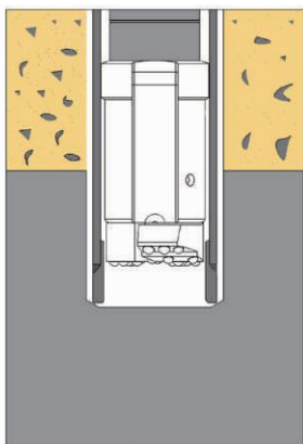
***The casing shoe is heat-treated to extend the service life.

Application: water well engineering, foundation engineering, slope support engineering, geothermal engineering and other fields

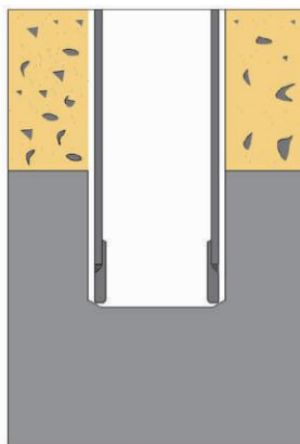
Operation procedure



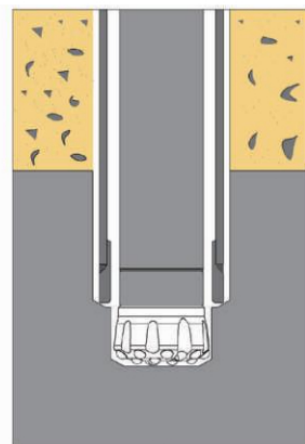
1. When drilling starts, the system drive the casing shoe and casing tube down



2. The drilling is finished after entering the bedrock, reverse rotation and pull out drill pipe, DTH hammer and casing



3. Direct grouting or continue to next step.

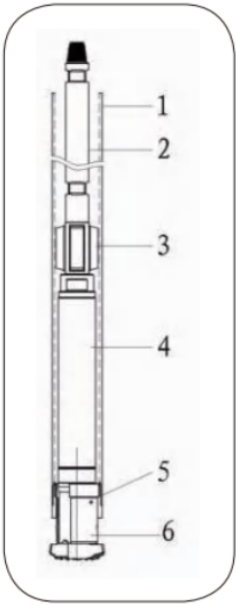


4. Drilling with conventional drilling tools until the required depth is reached.

HUNAN POWERDRILLS ROCK MACHINERY CO., LTD.

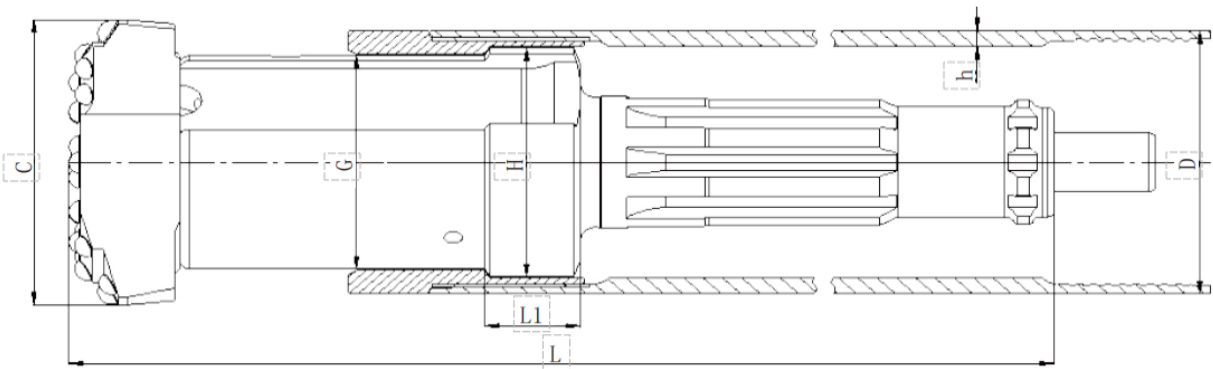
CONCENTRIC CASING DRILLING SYSTEM WITH DOUBLE WINGS

Related parts list



No.	Items	Description
1	Casing Tube	a.Threaded casing tube,left hand;
		b.Welded casing tube.
2	Drill pipe	Thread:API (REG/ IF)/NC
3	Stablizer	Thread of stabilizer is same as drill pipe
4	DTH hammer	Thread:API REG
5	Casing shoe	a.Threaded casing tube,left hand;
		b. Welded casing shoe
6	Wings system	Parameters are shown in the table below.

Technical specification



Model	D	I.D. of casing tube(mm)	h	H			C	G	Quantity of Wings	DTH hammer	Weight (kg)
	O.D. of casing tube (mm)		Thickness (mm)	Guide device Max. Dia. (mm)			Reamed Dia. (mm)	Min.O.D. of casing shoe (mm)			
T90	114	101	6.5	99			125	90	2	3.5"	15
T115	146	126	10	124			157	117	2	4"	20.5
T136	168	148	10	145			180	136	2	5"	33.5
T142	178	158	10	154			195	142	2	5"	39
T160	194	174	10	172			206	160	2	6"	48

HUNAN POWERDRILLS ROCK MACHINERY CO., LTD.

CONCENTRIC CASING DRILLING SYSTEM WITH FOOT WINGS

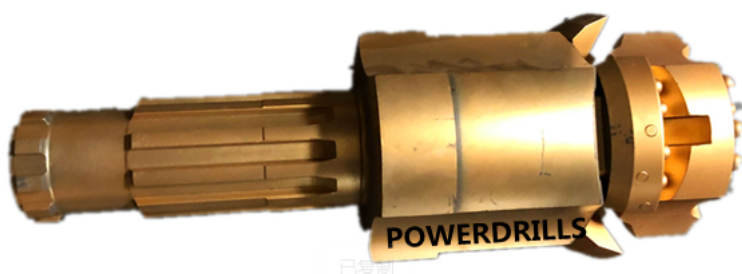


Model	O.D. of casing tube (mm)	I.D. of casing tube (mm)	Thickness (mm)	Guide device Max. Dia. (mm)	Reamed Dia. (mm)	Min. O.D. of casing shoe (mm)	Quantity of blocks	DTH hammer	Weight (kg)
F90	114	101	6.5	99	125	90	2	3.5"	15
F98	127	108	9.5	106	138	98	2	3.5"	18
F115	146	126	10	124	157	117	2	4"	20.5
F136	168	148	10	145	180	136	2	5"	33.5
F142	178	158	10	154	195	142	2	5"	39
F160	194	174	10	172	206	160	2	6"	48
F185	219	199	10	196	234	185	2	6"	61
F210	245	225	10	222	260	210	2	8"	88
F240	273	253	10	251	305	240	3	8"	97
F280	325	305	10	302	346	282	3	8" or 10"	115
F305	355	335	10	332	376	305	3	12"	214
F360	406	382	12	380	432	360	3	12"	254
F412	460	436	12	434	485	412	3	14"	415
F432	480	454.6	12.7	450	505	432	3	14"	415
F454	508	482.6	12.7	479	534	454	3	18"	630
F510	560	534.6	12.7	530	590	510	3	18"	730
F551	610	584.6	12.7	582	639	551	3	18"	895
F600	660	632	14	628	684	600	3	18" or 24"	946
F645	711	679	16	675	741	645	3	24"	1210
F694	762	730	16	726	800	694	3	24"	1595
F750	813	781	16	776	845	752	3	24"	2436
F850	914	882	16	878	966	850	4	28"	2756
F950	1016	984	16	980	1060	956	5	28"	3076

Other specifications are available upon request

HUNAN POWERDRILLS ROCK MACHINERY CO., LTD.

CONCENTRIC CASING DRILLING SYSTEM WITH JAWS

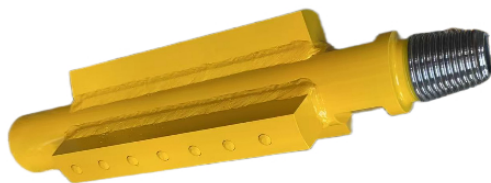


Model	O.D. of casing tube (mm)	I.D. of casing tube (mm)	Thickness (mm)	Guide device max diameter (mm)	Reamed diameters (mm)	Min.I.D. of casing tube (mm)	Max O.D. of normal bit (mm)	Mayched DTH hammer	Weight (kg)
ODEX 85	108	94	7	92	117	86	85	3.5"	10
ODEX 90	114	101	6.5	99	125	91	90	3.5"	12
ODEX 98	127	108	9.5	106	138	99.5	98	3.5"	14
ODEX 115	146	125	10	123.5	155	117	115	4"	25
ODEX 140	168	148	10	146	180	138	136	5"	37
	168	153	7.5	146	185	142.5	141	5"	38
ODEX145	178	158	10	156	192	148	146	5"	42
ODEX 152	183	163	10	161	196	153	151	5" 6"	46/50
ODEX 165	194	174	10	172	206	162	160	6"	58
	194	181	6.5	179	206	170	168	6"	62
ODEX 190	219	199	10	196	237	187	185	6"	72
	219	207	6	205	237	192	190	6"	74
ODEX 208	245	225	10	222	263	210	208	8"	106
ODEX 240	273	253	10	251	305	241	239	8"	132
	273	257	8	255	305	241	239	8"	134
ODEX 280	325	304	10.5	302	350	282	280	8" 10" 12"	205/220/240

Other specifications are available upon request

HUNAN POWERDRILLS ROCK MACHINERY CO., LTD.

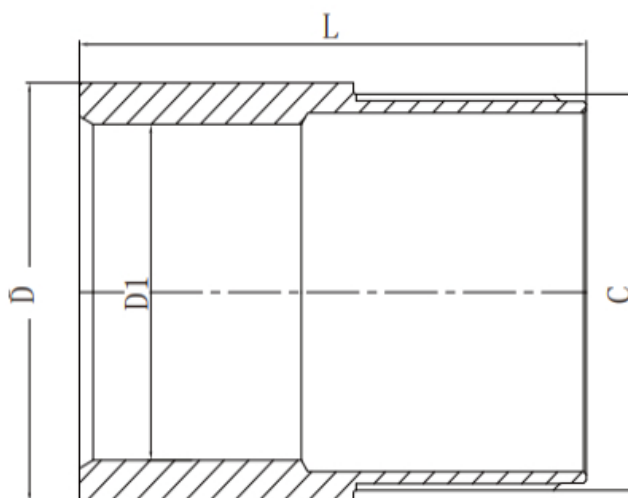
STABLIZER



Model	Outer diameter of casing tube (mm)	Inner diameter of casing tube (mm)	Outer diameter of drill pipe (mm)	Thread type	Outer diameter of stablizer (mm)
STABLIZER PWD 85	108	94	73	API 2 3/8" REG	80
STABLIZER PWD 90	114	101	73, 76	API 2 3/8" REG	85
STABLIZER PWD 98	127	108	73, 76	API 2 3/8" REG	90
STABLIZER PWD 115	146	125	73, 76	API 2 3/8" REG	108
STABLIZER PWD 140	168	148	73, 76	API 2 3/8" REG	125
	168	153	73, 76	API 2 3/8" REG	130
STABLIZER PWD145	178	158	73, 76	API 2 3/8" REG	135
STABLIZER PWD 152	183	163	73, 76	API 2 3/8" REG	140
STABLIZER PWD 165	194	174	73,76,89	API 2 3/8" REG or NC26	145
	194	181	73,76,89	API 2 3/8" REG or NC26	150
STABLIZER PWD 190	219	199	73,76,89	API 2 3/8" REG or NC26	170
	219	207	73,76,89	API 2 3/8" REG or NC26	175
STABLIZER PWD 208	245	225	89,102	API 3 1/2" REG or NC26 or NC31	195
STABLIZER PWD 240	273	253	89,102	API 3 1/2" REG or NC26 or NC31	220
	273	257	89,102	API 3 1/2" REG or NC26 or NC31	225
STABLIZER PWD 280	325	304	102,114	API 3 1/2" REG or NC31 or NC35	265

Other specifications are available upon request

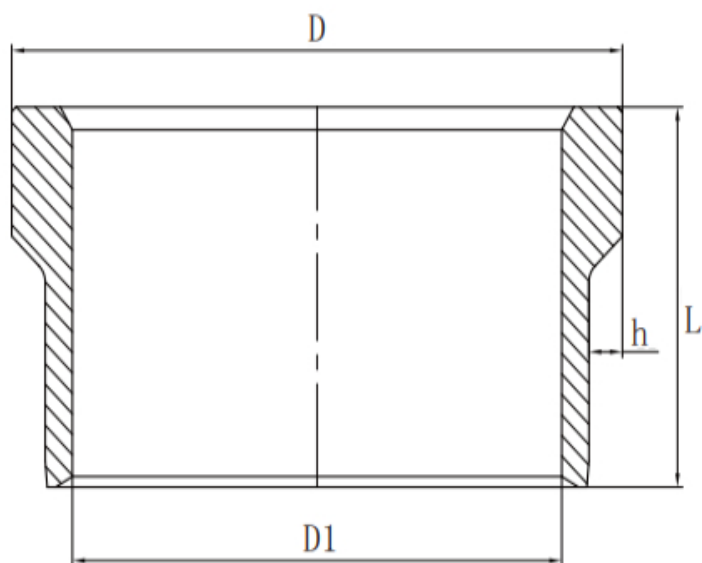
CASNIG SHOE WITH THREAD



Outer diameter of casing tube (mm)	D	D1	Thickness of casing tube (mm)	Weight (kg)
	Outer diameter of casing shoe (mm)	Minimum inner diameter of casing shoe (mm)		
108	108	86	7	2.4
114	114	91	6.5	3
127	127	99.5	9.5	3.3
146	146	117	10	4.4
168	168	138	10	6.2
178	178	148	10	7.5
183	183	153	10	8.6
194	194	162	10	8.8
219	219	187	10	12.8
245	245	210	10	13.5
273	273	241	10	15

C-Thread model can be tailored

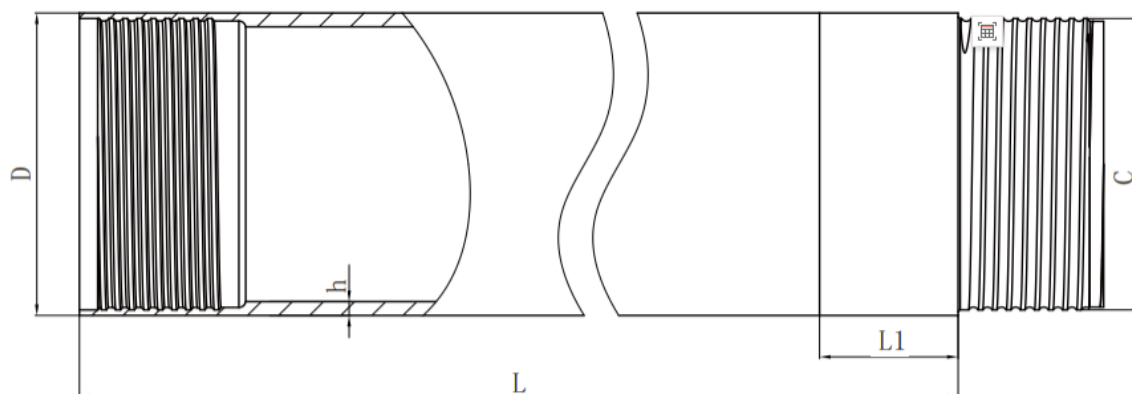
WELDING CASNIG SHOE



Outer diameter of casing tube (mm)	D	D1	Thickness of casing tube (mm)	Weight (kg)
	Outer diameter of casing shoe (mm)	Minimum inner diameter of casing shoe (mm)		
108	108	86	7	1.6
114	114	91	6.5	2.5
127	127	99.5	9.5	3
146	146	117	10	3.8
168	168	138	10	5
178	178	148	10	6
183	183	153	10	7.5
194	194	162	10	7.8
219	219	187	10	10
245	245	210	10	12
273	273	241	10	13.5
325	325	282	12.5	16

HUNAN POWERDRILLS ROCK MACHINERY CO., LTD.

CASING TUBE



Model (D)	Casing tube assembly			Casing tube			Joint		
	Model	Length (m)	Weight (kg)	Name	Thickness (h)	Weight(kg)	Name	Thickness (h)	Weight (kg)
108	108 casing tube with joint	1 to 9	18.9	108 casing tube	7	16.4	108 joint	7	2.5
114	114 casing tube with joint	1 to 9	18.5	114 casing tube	6.5	15.5	114 joint	6.5	3
127	127 casing tube with joint	1 to 9	24.4	127 casing tube	8	19.5	127 joint	10	4.9
146	146 casing tube with joint	1 to 9	31.9	146 casing tube	8	25.5	146 joint	10	6.4
168	168 casing tube with joint	1 to 9	33.9	168 casing tube	8	26.5	168 joint	10	7.4
178	178 casing tube with joint	1 to 9	40.9	178 casing tube	8	32	178 joint	10	8.9
194	194 casing tube with joint	1 to 9	44	194 casing tube	8	35	194 joint	10	9
219	219 casing tube with joint	1 to 9	51.5	219 casing tube	8	38.5	219 joint	10	13
273	273 casing tube with joint	1 to 9	65	273 casing tube	8	48.8	273 joint	10	16.2

Other specifications are available upon request