



Concentric Casing System With Ring Bit



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Drilling through formations with loose, unconsolidated material always comes with problems such as the bore hole caving in or collapsing. How to avoid these problems? With years of field practice and research, Tianhe has developed its Concentric casing system with ring bit for the widest applications, including formations which Eccentric and concentric casing system with blocks are used for, also for those with boulders and cavities. With efficient penetration, the system is up to casing 100 meters, and can also be used for foundation piling.

Application range

Applied to over burden formations with complex topographic and geological conditions, such as gravel, fissured formation, boulder, landfill of construction refuse, etc.

Drills at any angle;

Good straightness of borehole;

Maximum depth of borehole can reach 150 meters.



Component parts



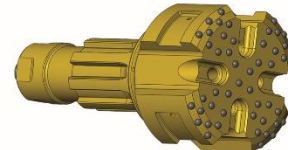
Casing shoe:

Used to connect the casing tube.



Ring bit:

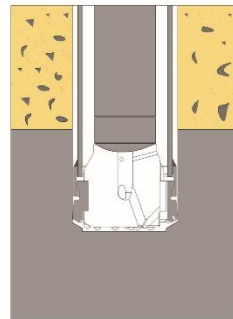
Used to connect the pilot bit and casing shoe.



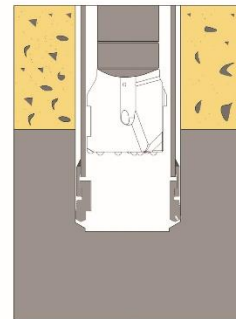
Pilot bit:

The major structure of concentric casing system, with buttons and flushing grooves, etc.

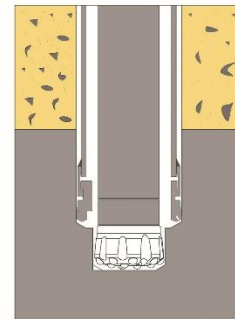
Operation schematic figure



The drilling in over burden formation is finished.



Reverse rotation of the hammer and pull the pilot bit out from the hole.



Replace the pilot bit with normal bit to continue drilling down.



Structural advantages

Straightness: ensures the straightness of borehole in different topographic and geological conditions.

Adaptability: ensures penetration efficiency in complex topographic and geological conditions, such as gravel and landfill of construction refuse.

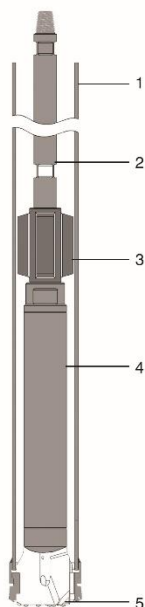
Lower torque: the system torque is less than eccentric casing system.

Easy to unlock and re-lock: easy to re-lock after unlock.

Drilling at any angle: concentric casing system can drill under horizontal, vertical and inclined conditions.

Environmental: better than eccentric casing system, because of its advantages of drilling smoothly, small vibration and low noise, it's more suitable for construction in urban areas.

Related Parts List



NO	Items	Description
1	Casing tube	a. Threaded casing tube, left turning thread b. Welded casing tube
2	Drill rod	Thread: API (REG/ IF)
3	Stabilizer	Thread of stabilizer is in keeping with drilling pipe
4	Hammer	Thread model: API REG
5	Concentric Overburden Drilling System	See the followed form for the specs

Application range



Foundation:

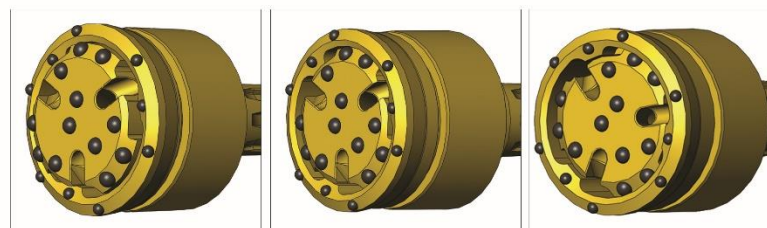
Because of its drilling smooth, good straightness of borehole and not effected by complex geological conditions such as gravel formation, it's suitable for application in foundation.



Anchoring:

In general, the casing system is in the state of non-vertical when used in anchoring job, and the geological conditions are complex. Because the concentric casing system can drill at any angle, and without restriction of geological condition, so it can meet the practical requirements of anchoring project.

Bit face

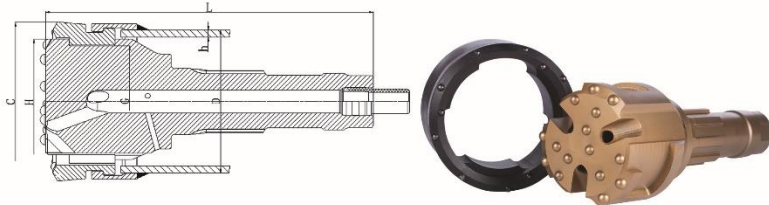


Shape A (Convex face):

Shape B (Flat face):

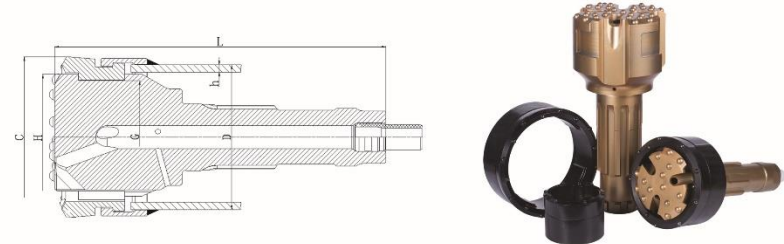
Shape C (Concave face):

Intergrated ring bit and casing shoe(Retrievable)



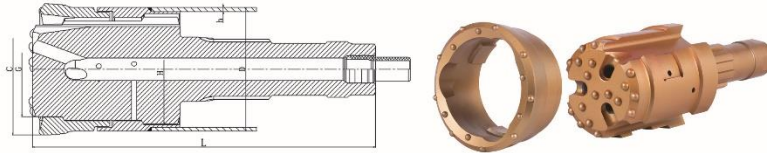
Specifications	D	h	H	C	G	DTH Hammer/Top Hammer Type	Weight (kg)
Top Hammer Type							
R76/7-39	76	62	7	57	84	R32	3.2
R89/8-58	89	73	8	70	96	T38	5.8
R114/9-80	114	94	10	92	122	T45	7.5
R127/10-90	127	107	10	105	136	T45	10
R140/10-97	140	120	10	116	148	T45,T51	15
DTH Hammer Type							
R114/9-80	114	94	10	92	122	COP34/DHD3.5/TH3.5	10
R127/10-90	127	107	10	105	136	COP34/DHD3.5/TH3.5	16
R140/10-97	140	120	10	116	148	COP44/DHD340/SD4/QL40	21
R146/10-110	146	126	10	124	154	COP44/DHD340/SD4/QL40	22
R168/12.7-125	168	142.6	12.7	141	180	COP54/DHD350/SD5/QL50/M50	27
R178/12.7-135	178	152.6	12.7	150	186	COP54/DHD350/SD5/QL50/M50	32.5
R194/12.7-145	194	168.6	12.7	166	202	COP64/DHD360/SD6/QL60/M60	42.5
R219/12.7-170	219	193.6	12.7	191	228	COP64/DHD360/SD6/QL60/M60	58
R245/12.7-195	245	219.6	12.7	214	254	COP84/DHD380/SD8/QL80	78
R254/12.7-203	254	228.6	12.7	224	265	COP84/DHD380/SD8/QL80	84.5
R273/12.7-223	273	247.6	12.7	241	286	COP84/DHD380/SD8/QL80	100
R325/12.7-276	325	299.6	12.7	292	338	COP84/DHD380/SD8/QL80	135
R406/12.7-350	406	380.6	12.7	377	420	DHD112/TH12/QL120/SD12/NUMA120	280
R508/12.7-416	508	482.6	12.7	478	522	QL200/SD18/NUMA180/TH18	522
R560/12.7-475	560	534.6	12.7	528	575	QL200/SD18/NUMA180/TH18	620
R610/12.7-513	610	584.6	12.7	558	620	QL200/SD18/NUMA180/TH18	710

Intergrated ring bit and casing shoe(Permanent)



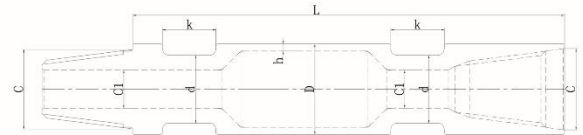
Specifications	D	h	H	C	G	DTH Hammer/Top Hammer Type	Weight (kg)
Top Hammer Type							
P76/7-39	76	62	7	57	88	R32	3.2
P89/8-58	89	73	8	70	100	T38	5.8
P114/9-84	114	94	10	92	126	T45	7.5
P127/10-93	127	107	10	105	142	T45	10
P140/10-97	140	120	10	116	161	T45,T51	15
DTH Hammer Type							
P114/9-84	114	94	10	94	126	COP34/DHD3.5/TH3.5	10
P127/10-93	127	107	10	105	142	COP34/DHD3.5/TH3.5	16
P140/10-97	140	120	10	116	161	COP44/DHD340/SD4/QL40	21
P146/10-110	146	126	10	124	165	COP44/DHD340/SD4/QL40	22
P168/12.7-127	168	142.6	12.7	141	188	COP54/DHD350/SD5/QL50/M50	27
P178/12.7-131	178	152.6	12.7	150	196	COP54/DHD350/SD5/QL50/M50	32.5
P194/12.7-145	194	168.6	12.7	166	214	COP64/DHD360/SD6/QL60/M60	42.5
P219/12.7-170	219	193.6	12.7	191	243	COP64/DHD360/SD6/QL60/M60	58
P245/12.7-195	245	219.6	12.7	214	268	COP84/DHD380/SD8/QL80	78
P254/12.7-203	254	228.6	12.7	224	276	COP84/DHD380/SD8/QL80	84.5
P273/12.7-223	273	247.6	12.7	241	298(305)	COP84/DHD380/SD8/QL80	100
P325/12.7-276	325	299.6	12.7	292	350	COP84/DHD380/SD8/QL80	135
P406/12.7-350	406	380.6	12.7	377	442	DHD112/QL120/SD12/NUMA120	280
P508/12.7-416	508	482.6	12.7	478	545	QL200/SD18/NUMA180/TH18	522
P560/12.7-475	560	534.6	12.7	528	595	QL200/SD18/NUMA180/TH18	620
P610/12.7-513	610	584.6	12.7	558	645	QL200/SD18/NUMA180/TH18	710

Solitary ring bie (Permanent)



Specifications	D	h	H	C	G	DTH Hammer/Top Hammer Type	Weight (kg)
	O.D. of Casing Tube (mm)	I.D. of Casing Tube (mm)	Wall thickness of Casing Tube (mm)	Max. O.D. of Pilot Bit (mm)	Ring Bit O.D. (mm)	Max. O.D. of Normal Bit (mm)	
Top Hammer Type							
P76/8-39	76	60	8	58	88	39	R32 2.5
P89/8-52	89	73	8	71	100	52	T38 5.5
P114/10-80	114	94	10	92	125	80	T45 9.5
P140/10-96	140	120	10	118	158	96	T45,T51 10
DTH Hammer Type							
P108/6.5-75	108	95	6.5	94	120	75	COP34/DHD3.5 10.1
P114/6.5-82	114	101	6.5	99	126	82	COP34/DHD3.5 13.8
P127/9-85	127	109	9	107	138	85	COP34/DHD3.5 18
P140/10-96	140	120	10	118	154	96	COP44/DHD340/SD4/QL40 21
P146/10-103	146	126	10	124	158	103	COP44/DHD340/SD4/QL40 23.5
P168/10-125	168	148	10	153	188	125	COP54/DHD350/SD5/QL50/M50 27.5
P178/10-140	178	158	10	157	196	140	COP54/DHD350/SD5/QL50/M50 42
P194/10-148	194	174	10	172	214	148	COP64/DHD360/SD6/QL60/M60 57.5
P219/10.5-170	219	198	10.5	196	243	170	COP64/DHD360/SD6/QL60/M60 75
P245/12.7-185	245	219.6	12.7	218	260	185	COP84/DHD380/SD8/QL80 105
P273/12.7-203	273	247.6	12.7	245	298	203	COP84/DHD380/SD8/QL80 122
P325/12.7-255	325	299.6	12.7	294	350	255	COP84/DHD380/SD8/QL80 135
P406/12.7-340	406	380.6	12.7	378	438	340	DHD112/QL120/SD12/NUMA120 420
P508/12.7-445	508	482.6	12.7	478	538	445	SD18/NUMA180/TH18 522
P560/12.7-495	560	534.6	12.7	521	580	495	SD18/NUMA180/TH18 608
P610/14.2-514	610	581.6	14.2	574	630	514	QL200/SD18/NUMA180/TH18 703
P660/14.2-590	660	631.6	14.2	618	680	590	QL200/SD18/NUMA180/TH18 788
P711/14.2-606	711	682.6	14.2	674	731	606	QL200/SD18/NUMA180/TH18 934.5
P762/16-669	762	730	16	724	782	669	TH24/NUMA240 1247
P813/16-709	813	781	16	769	835	709	TH24/NUMA240 1380
P914/16-818	914	882	16	851	935	818	TH24/NUMA240 1657
P1016/16-913	1016	984	16	973	1040	913	TH24/NUMA240/TH28/QL300 2100
P1220/20-1136	1220	1180	20	1174	1250	1136	TH28/QL300 3270
P1550/20-1464	1550	1510	20	1504	1580	1464	TH36 5405

Drill pipe specifications



	D	h		C	C1	d	k	L		
Specifications		Wall	Description	Thread Pin	Inner Dia.	Flat Wrench		Length/L	Weight	Product Code
		Thickness(mm)		/Box	(mm)			(m)	(kg)	
76 (3")	6.5	76 Drill Pipe	API2 3/8REG	32	57	45		3000	40	D1-076A1-30065
	8.5	76 Drill Pipe	API2 3/8REG	32	57	45		3000	48	D1-076A1-30085
	6.5	89 Drill Pipe	API2 3/8REG	32	70	45		3000	48	D1-089A1-30065
89 (3 1/2")	8.5	89 Drill Pipe	API2 3/8REG	32	70	45		3000	58	D1-089A1-30085
	6.5	89 Drill Pipe	API2 3/8 IF	40	70	45		3000	48	D1-089N1-30065
	8.5	89 Drill Pipe	API2 3/8 IF	40	70	45		3000	58	D1-089N1-30085
102 (4")	6.5	102 Drill Pipe	API3 1/2REG	45	83	51		3000	56	D1-102A3-30065
	8.5	102 Drill Pipe	API3 1/2REG	45	83	51		3000	67	D1-102A3-30085
	6.5	102 Drill Pipe	API3 1/2 IF	45	83	51		3000	56	D1-102N2-30065
	8.5	102 Drill Pipe	API3 1/2 IF	45	83	51		3000	67	D1-102N2-30085
	6.5	114 Drill Pipe	API3 1/2REG	45	95	51		3000	63	D1-114A3-30065
114 (4 1/2")	8.5	114 Drill Pipe	API3 1/2REG	45	95	51		3000	76	D1-114A3-30085
	6.5	114 Drill Pipe	NC35	60	95	51		3000	63	D1-114N4-30065
	8.5	114 Drill Pipe	NC35	60	95	51		3000	76	D1-114N4-30085
	8.5	127 Drill Pipe	API3 1/2REG	45	108	51		3000	86	D1-127A3-30085
	8.5	127 Drill Pipe	API3 1/2 IF	60	108	51		3000	86	D1-127N4-30085
133 (5 1/4")	10	133 Drill Pipe	API3 1/2REG	45	114	51		3000	102	D1-133A3-300K0
140 (5 1/2")	9.2	140 Drill Pipe	API3 1/2REG	45	121	51		3000	101	D1-140A3-30092
146 (5 3/4")	10	146 Drill Pipe	API4 1/2REG	60	127	55		3000	113	D1-146A4-300K0
152 (6")	8.5	152 Drill Pipe	API4 1/2REG	60	133	55		3000	105	D1-152A4-30085
168 (6 5/8")	10	168 Drill Pipe	API4 1/2 IF	60	149	55		3000	132	D1-168N8-300K0
178 (7")	10	178 Drill Pipe	API4 1/2REG	60	159	55		3000	140	D1-178A4-300K0

Other specifications and length can be customized.



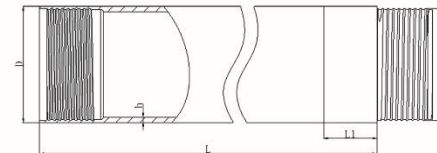
Hammer

TH Series Hammer

Model	Length Without Bit (mm)	O.D. Of Hammer (mm)	Thread Connection	Working Pressure	Weight (kg)	Product Code
TH3.5D	807	82	API 2 3/8 REG	1.0~1.5Mpa	25	B1-TH3HD-A1001
TH45	927	99	API 2 3/8 REG	1.0~2.4Mpa	42	B1-TH04T-A1001
TH55	987	126	API 2 3/8 REG	1.0~2.4Mpa	81	B1-TH05T-A1001
TH65	1163.5	146	API 3 1/2 REG	1.0~2.4Mpa	100	B1-TH06T-A3001
TH85	1364.5	182	API 4 1/2 REG	1.4~2.4Mpa	197	B1-TH08T-A4001
TH12	1937	274	API 6 5/8 REG	1.7~2.4Mpa	675	B1-TH12T-A6001
TH14	2235	330	273Hexagonal flats	1.7~2.4Mpa	950	B1-TH14T-L1001
TH18	2425	406	273Hexagonal flats	1.7~2.4Mpa	1530	B1-TH18T-L1001
TH24	2495	525	320Hexagonal flats	1.7~2.4Mpa	2540	B1-TH24T-L2001
TH28	2610	650	320Hexagonal flats	1.7~2.5Mpa	4236	B1-TH28T-L2001



Casing tube specifications



Assembled casing tube with tool joint

O.D.(D)	Wall Thickness(mm)	Product	Thread Type(C)	Direction of Thread	Length(L)	Weight(kg)	Product Code
108	7	108 Casing Tube	Square thread	Left	1500	27.1	F2-108J1-15070
114	6.5	114Casing Tube(with Tool Joint)	Square thread	Left	1500	31	F2-114J2-15065
127	9.5	127 Casing Tube	Circular-arc Thread	Left	1500	43.7	F2-12705-15095
127	6.5	127 Casing Tube	Circular-arc Thread	Left	1500	35	F2-12706-15065
146	10	146 Casing Tube	Circular-arc Thread	Left	1500	53.7	F2-14606-150K0
168	10	168 Casing Tube	Circular-arc Thread	Left	1500	62.4	F2-16807-150K0
178	9	178 Casing Tube	Circular-arc Thread	Left	1500	61.8	F2-17808-15090
194	10	194 Casing Tube	Circular-arc Thread	Left	1500	73	F2-19409-150K0
219	10	219 Casing Tube	Circular-arc Thread	Left	1500	85.7	F2-21910-150K0
273	10	273 Casing Tube	Circular-arc Thread	Left	1500	107.7	F2-27311-150K0
325	12	325 Casing Tube	Circular-arc Thread	Left	1500	154.7	F2-32512-150K2

Casing Tube without tool joint				Tool Joint			
O.D.(D)	Description	Weight	Product Code	Description	Length(L1)	Weight	Product Code
108	108 Casing Tube	24.6	F2-108J1-15070-01	108 Tool Joint	80	2.5	F2-108J1-15070-02
127	127 Casing Tube	38.8	F2-12705-15095-01	127 Tool Joint	90	4.9	F2-12705-15095-02
127	127 Casing Tube	30.1	F2-12706-15065-01	127 Tool Joint	90	4.9	F2-12706-15095-02
146	146 Casing Tube	47.3	F2-14606-150K0-01	146 Tool Joint	80	6.4	F2-14606-150K0-02
168	168 Casing Tube	55	F2-16807-150K0-01	168 Tool Joint	80	7.4	F2-16807-150K0-02
178	178 Casing Tube	52.9	F2-17808-15090-01	178 Tool Joint	100	8.9	F2-17808-15090-02
194	194 Casing Tube	64	F2-19409-150K0-01	194 Tool Joint	100	9	F2-19409-150K0-02
219	219 Casing Tube	72.7	F2-21910-150K0-01	219 Tool Joint	100	13	F2-21910-150K0-02
273	273 Casing Tube	91.5	F2-27311-150K0-01	273 Tool Joint	100	16.2	F2-27311-150K0-02
325	325 Casing Tube	130.7	F2-32512-150K2-01	325 Tool Joint	100	24	F2-32512-150K2-02

Other specifications and length can be customized.

