
casagrande
FOUNDATION
DRILLING
TOOLS

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casagrande
B300
XP

FOUNDATION DRILLING TOOLS AND ACCESSORIES

General Description

Since 1963 the purpose of Casagrande has always been to manufacture a wide range of machines with highest level of reliability and performance in the field of special foundations.

The search for high performance, combined with the search for ever better reliability, has always been the real and recognizable philosophy of Casagrande in construction sites around the world.

Numerous efforts have been made, over the years, by engineers and workers of Casagrande to offer to its customers the best power tool suitable to the excavation.

This concept combined with the competent advice received from our customers and our operators, together with the continuous activity and research of our technicians in all type of work on construction sites and in soils around the world, has recently led to the creation of our new range XP, which for us means simply EXTRA PERFORMANCE.

However, we believe that drilling is a complex and difficult process where the theoretical knowledge must be reflected in the practice and execution.

In order to obtain the best of the new innovations hydraulic installed on the machine and transfer properly to the ground, we have created a new and complete range of drilling tools and accessories.

The **Gold** Line and the **Silver** Line tools have been introduced as two product lines with the goal of even better satisfying various requirements of customers. In details the two lines are manufactured accordingly to the XP torque and soil-rock hardness.

Both lines of drilling tools have some basic principles in common, which are dealt with utmost priority, such as:

- Quality
- High performance
- Greatest reliability
- Highest safety levels
- Lowest maintanance
- Long lifetime
- Customized design

Short delivery times can be met even for special tools or components. Highly flexible production line, experienced technicians pleased to assist you on site and extensive stocks are prerequisites for this.

Client satisfaction is key criteria for all tools and components we make.

DRILLING TOOLS

	BUCKET		AUGER	
GROUND	SOIL	ROCK	SOIL	ROCK
DESIGN	SINGLE OPENING (Up to Ø 1000 mm) DOUBLE OPENING (Over Ø 1000 mm)		SINGLE START (Up to Ø 1000 mm) DOUBLE START (Over Ø 1000 mm)	**FLAT** Single/Double start Without pilot bit **CONICAL** Single/Double start Progressive
EQUIPMENT	Flat Teeth - Esco 18 TL / 25 T - Esco Ultralock - Betek	BETEK Round Shank Chisel - 25,4 mm (1") - 30/38 mm	Flat Teeth - Esco 18 TL / 25 T - Esco Ultralock - Betek	BETEK Round Shank Chisel - 25,4 mm (1") - 30/38 mm
GOLD Line **Designed for Rotary Torque over 160 kNm/118 lb ft**	Suitable for drilling in stratification with hardness range of 0 – 12.5 MPa Mainly for fine grained soil Dense to very dense sand and gravel Silt and clay under water Soft to hard silt and clay Weak rock	Suitable for drilling in stratification with hardness range of 12.5 – 50 MPa Medium and hard Rock Very dense sand and gravel	Suitable for drilling in stratification with hardness range of 0 – 12.5 MPa Dense to very dense sand and gravel Weak Rock Weathered rock Stiff to hard silt and clay Medium to dense sand and gravel	Suitable for drilling in stratification with hardness range of 0 – 12.5 MPa Medium to hard rock Very dense sand and gravel Suitable for drilling in stratification with hardness range of 12.5 – 50 MPa Hard to very hard rock Very suitable in fractured rock Suitable for drilling in stratification with hardness range of 12.5 – 50 MPa Moderately strong to strong rock Suitable for drilling in stratification with hardness range of 50 – 100 MPa Moderately strong to strong rock
SILVER Line **Designed for Rotary Torque up to 160 kNm/118 lb ft**	Suitable for drilling in stratification with hardness range of 0 – 12.5 MPa Mainly for fine grained soil Dense sand and gravel Silt and clay under water Soft to stiff silt and clay Loose to medium dense sand and gravel	Suitable for drilling in stratification with hardness range of 12.5 – 50 MPa Weak and Medium Rock Dense sand and gravel	Suitable for drilling in stratification with hardness range of 0 – 12.5 MPa Fine up to dense sand and gravel Soft to stiff silt and clay Loose to medium dense sand and gravel	Suitable for drilling in stratification with hardness range of 0 – 12.5 MPa Medium to hard rock Suitable for drilling in stratification with hardness range of 12.5 – 50 MPa Moderately strong rock Suitable for drilling in stratification with hardness range of 50 – 100 MPa Moderately strong rock

CORE BARREL		SPECIAL TOOLS		
ROCK		SOIL	ROCK	**GROUND**
CORE BARREL	CORE BARREL – BRICK	CLEANING BUCKET BELLING BUCKET	CORE BARREL - Cross CORE BARREL - Roller Bits CHISEL	**DESIGN**
BETEK Round Shank Chisel - 25,4 mm (1") - 30/38 mm	BETEK Interchangeable Widia Inserts	Swivel bottom gate with blades and reamers without pilot bit Flat Teeth - Esco 18 TL / 25 T - Esco Ultralock - Betek	BETEK Round Shank Chisel - 30/38 mm Roller Bits Cutting Edges in Hardbox HB400	**EQUIPMENT**
Suitable for drilling in stratification with hardness range of 50 – 100 MPa Suitable for cutting through fissured and fractured strong rock	Suitable for drilling in stratification with hardness range of 50 – 100 MPa Generally used to cut low fractured medium up to hard rock formation. Also used in slightly reinforced concrete	For cleaning bottom of pile in soil stratification with hardness range of 0 -12.5 Mpa Used for enlarging the pile base in stable soil condition	Suitable for drilling in stratification with hardness range of 50 – 100 MPa Cross Core Barrel is used to break rock cores which remain in the borehole after using a standard core barrel. The core is broken with round shank chisels and the related broken parts are collected and removed with rock buckets. Suitable for drilling in stratification with hardness > 100 MPa Special roller bits cut the annular slot for a width of 200 / 300 mm making the rock fractured in many chippings The centre core can be broken using chisel, rock auger or Cross Core Barrel. Rock Bucket is recommended to collect and remove all broken rock parts from the pile. The Chisel is used in combination with grabs to pound and fracture stratification with hardness > 100 MPa	**GOLD** Line **Designed for Rotary Torque over 160 kNm/118 lb ft**
Suitable for drilling in stratification with hardness range of 50 – 100 MPa Generally used to cut fractured medium up to hard rock formation and partially fragmented medium up to hard rock formations.		For cleaning bottom of pile in soil stratification with hardness >12.5 Mpa		**SILVER** Line **Designed for Rotary Torque up to 160 kNm/118 lb ft**

SOIL AND ROCK HARDNESS

Compressive Strength (Mpa) — Soft (0–40) · Medium (50–80) · Hard (90–110) · Very Hard (120–330)

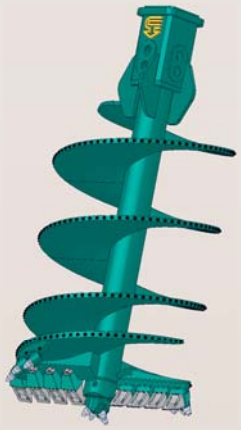
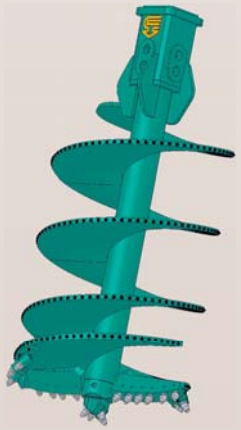
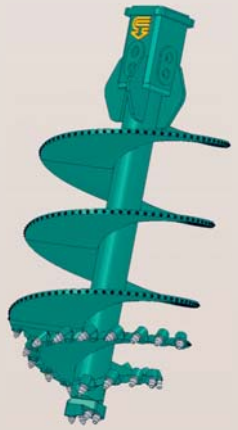
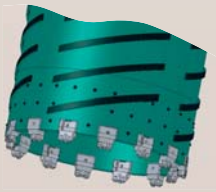
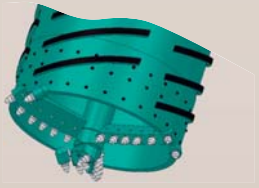
Scale: 0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 330

	SEDIMENTARY ROCKS	min.	max.
Clastics	Gravel, Loam, Silica, Clay, Sand	< 5	30
	Breccia	10	45
	Conglomerate	80	150
	Sandstone	120	200
	Argillite	10	100
	Tuff	5	10
Chemistries	Limestone, Dolostone	55	220
	Travertine	20	60
	Gypsum, Halite	< 5	30
	Carbonate	10	25
	Flint (o Jasper)		190
	Phosphorite	<5	10
	Alabaster	55	120
	Anhydrite	100	130
Biochemistries	Marl	< 5	30
	Coal	5	50
	Diatomite	10	100

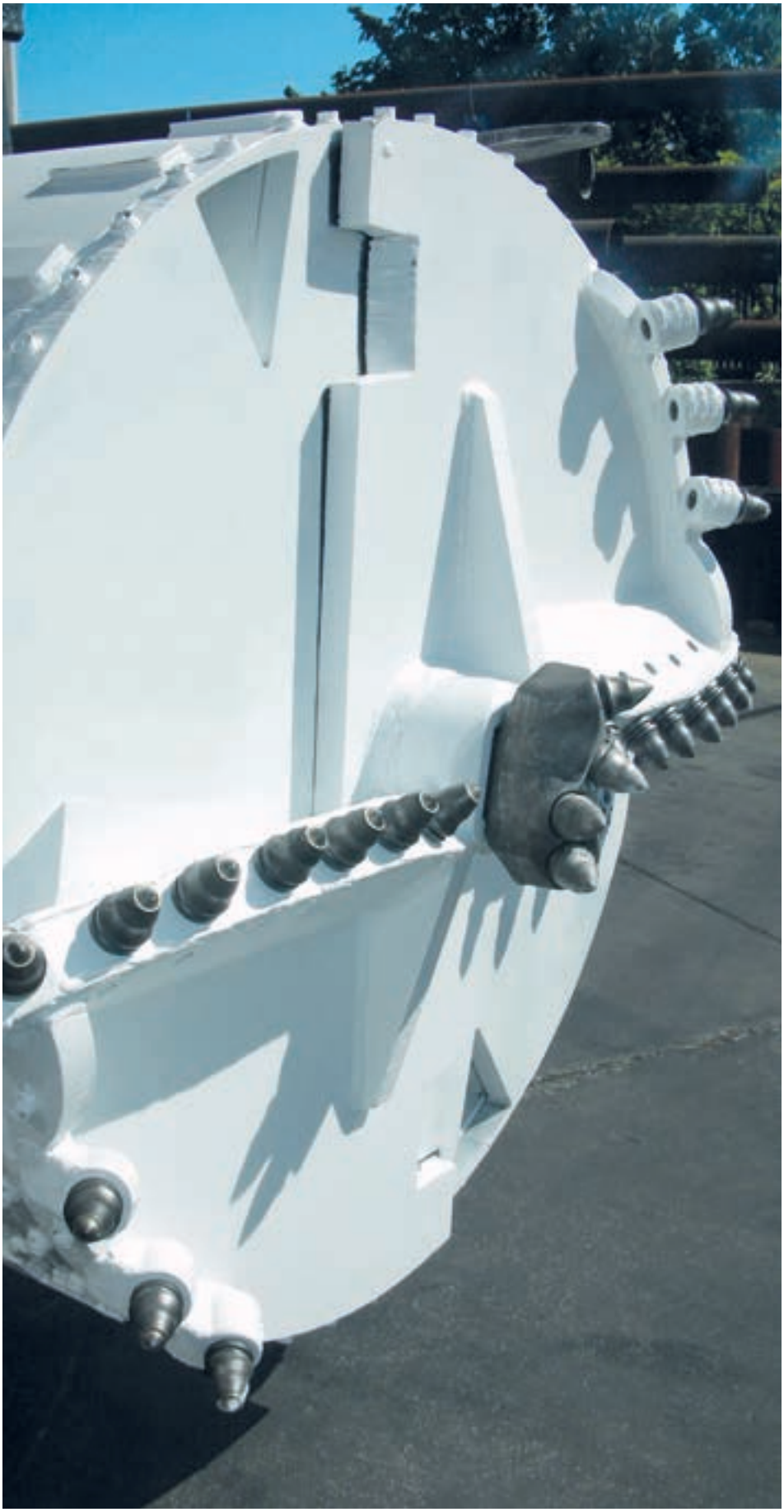
METAMORPHIC ROCKS	min.	max.
Marble	90	220
Gneiss	110	240
Andresia	70	200
Anphibolite	170	280
Schists	5	100
Quarzite	150	300
Phyllite, Mica Schist, Calcareous Schist	70	100
Parageniss, Ortogneiss	110	160
Chlorite schist	10	50
Serpentinite		> 300

IGNEOUS ROCKS	min.	max.
Basalt	120	300
Porphyry	180	> 300
Granite	130	250
Diorite, Labradorite	180	300
Syenite	150	270
Gabbro	160	300
Andesite	180	> 300
Trachyte	140	180
Grandioroto, Tonalite, Grandiorite	150	300
Rhyolite	160	190
Leucititi	110	140
Obsidian, Pomice	100	120
Dacite	140	170
Peridodite		> 300
Pegmatite, Aplite, Porphryte	100	250

RECOMMENDED CHART

Rock Compressive Strength (MPa)			
0 - 12.5	12.5 - 50	50 - 100	> 100
 SOIL AUGER	 ROCK AUGER (without Pilot Bit)	 CONICAL ROCK AUGER (Double Flight)	 CORE BARREL - ROLLER BITS
 ROCK AUGER	 CONICAL ROCK AUGER	 CORE BARREL	 CHISEL
 SOIL BUCKET	 ROCK BUCKET	 CORE BARREL - BRICK  CORE BARREL - CROSS	
0 - 50		50 - 100	
Rock Quality Designation RQD (%)			

BUCKETS



Buckets are recommended for drilling layers of soil and rock in presence of water and when the drilling technology uses bentonite.

As result of different job site reports, buckets are designed in two different ways:

- **Single opening:** suitable for fine grained soils and bored pile up to diameter 1000 mm. They are particularly indicated in case of casings application and coarse gravel.
- **Double opening:** suitable for fine grained soils and bored pile over diameter 1000 mm. They are particularly indicated for secant pile walls

Designed with a rotating bottom to load drilled material; a vent pipe making the water or bentonite pass through reduces the pressure on the tool so that it can be lifted up easily.

Provided with mechanical opening system to unlock bottom parts and release fastly drilled material they can be supplied with different type of Teeth and Round Shank Chisel accordingly with soil and rock hardness.

Buckets diameters match perfectly Casagrande casings in both alternatives: Screw and Labyrinth types.

Their dimensions can be changed on Client needs and they are available on request.

The weights are approximate values.

SOIL BUCKET

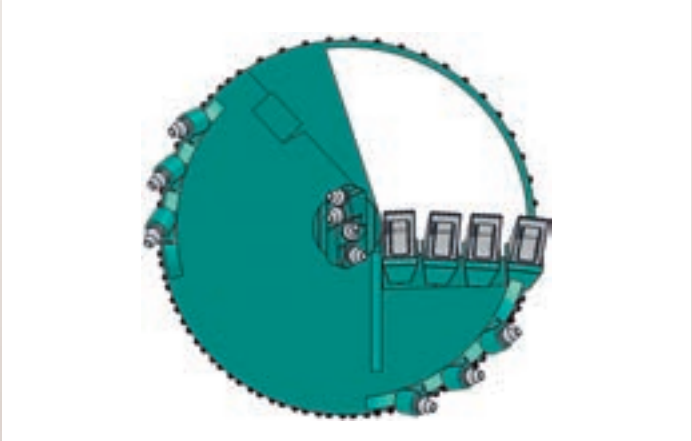
GOLD

MAIN USE

- Suitable for drilling in stratification with hardness range of 0 – 12.5 MPa
- Mainly for fine grained soil
- Dense to very dense sand and gravel
- Silt and clay under water
- Soft to hard silt and clay
- Weak rock

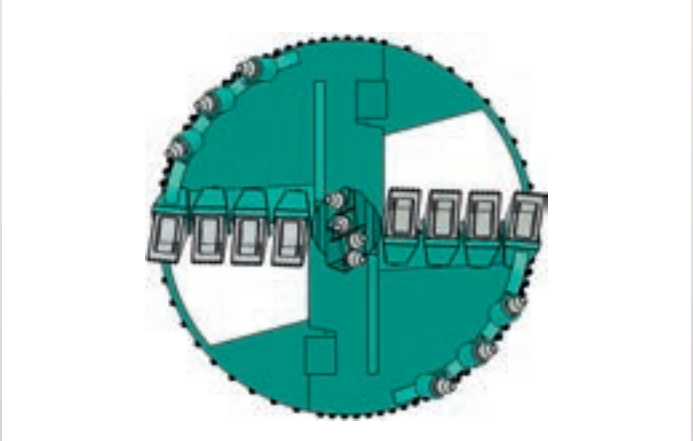
TECHNICAL SPECIFICATIONS

Cylinder
Made of steel ASTM 516/70
Thickness = 20 mm
Height = 1250 mm
Bottoms
Fixed bottom in steel ASTM 516/70
Thickness = 30/40 mm
Rotating bottom in Hardox HB 400
Thickness = 30/40 mm
Collar plates equipped with round shank chisel Ø 30/38 mm
Tung Studs HB 900
Blades
In Hardox HB 400
Thickness = 70 mm
Equipment
Teeth Esco 18TL/25T, Esco Ultralock or Betek (recommended)
Pilot bit
Interchangeable
Kelly box
200x200 mm made of heat-treated cast steel
130x130 mm
Upper and lower antiwear plates in Hardox HB 400
Lower reamers plates in Hardox HB 400
Mobile upper reamer plate
Ventilation system to prevent the formation of vacuum during extraction



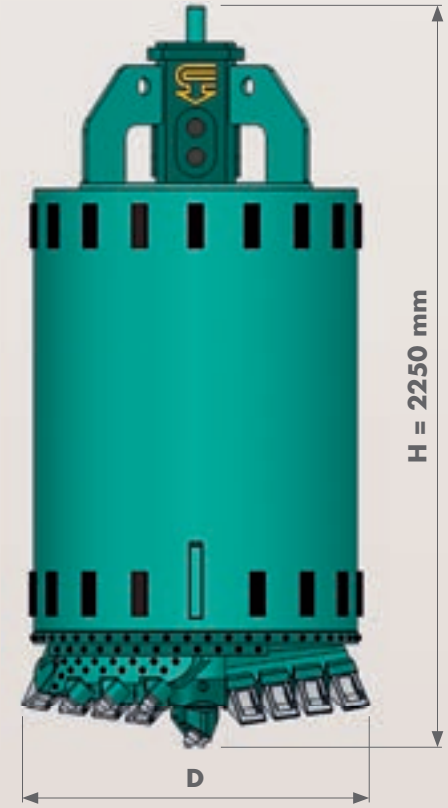
SINGLE OPENING

Up to pile diameter Ø 1000 mm



DOUBLE OPENING

Over pile diameter Ø 1000 mm



OD Casing Outer Diameter	ID Casing Inner Diameter	D Tool Cutting Edge	Weight
mm	mm	mm	kg
620	540	520	660
700	620	600	760
750	670	650	820
800	720	700	880
880	800	780	1020
900	820	800	1040
1000	920	900	1150
1100	1020	1000	1280
1180	1100	1060	1380
1200	1120	1080	1430
1300	1220	1180	1580
1320	1240	1200	1650
1500	1400	1350	1830
1650	1550	1500	2150
1800	1700	1650	2400
1950	1850	1800	2750
2000	1880	1830	2950
2170	2050	2000	3150
2200	2080	2030	3250
2500	2380	2320	3950
2680	2560	2500	4350

Other dimensions are available on request

SOIL BUCKET

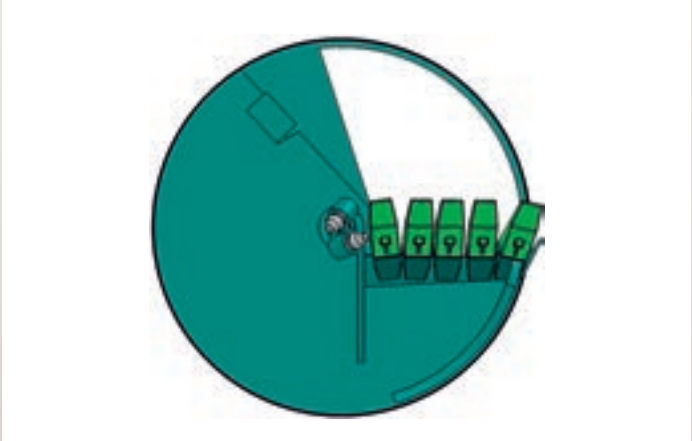
SILVER

MAIN USE

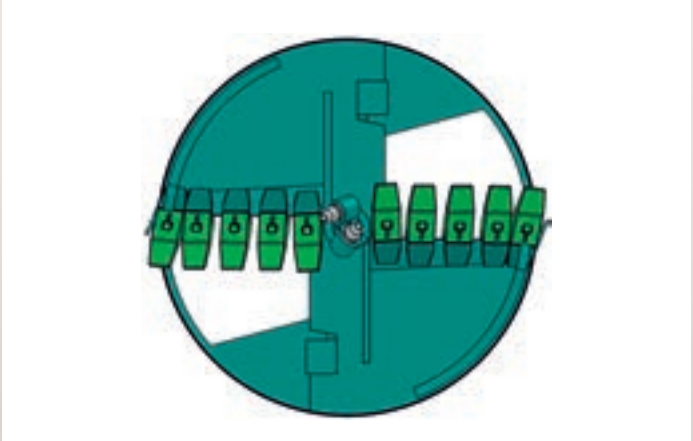
- Suitable for drilling in stratification with hardness range of 0 – 12.5 MPa
- Mainly for fine grained soil
- Dense sand and gravel
- Silt and clay under water
- Soft to stiff silt and clay
- Loose to medium dense sand and gravel

TECHNICAL SPECIFICATIONS

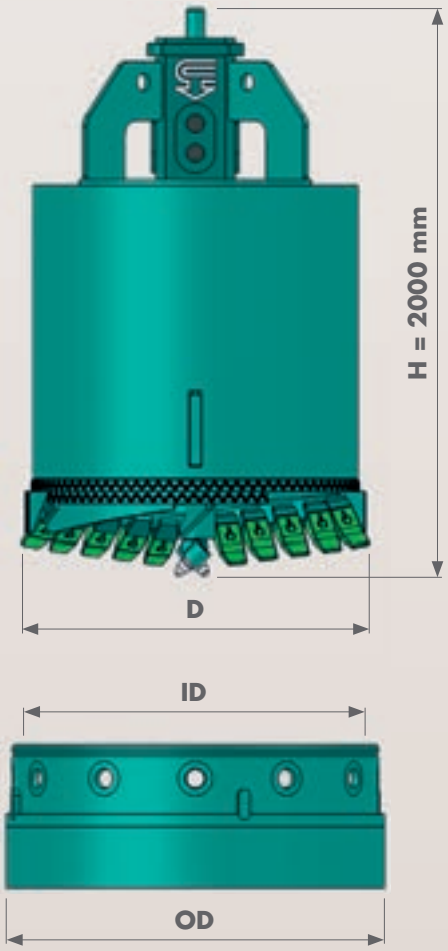
Cylinder
Made of steel ASTM 516/70
Thickness = 20 mm
Height = 1000 mm
Bottoms
Fixed and rotating bottom in steel ASTM 516/70
Thickness = 30/40 mm
Hard faced ribbings HB 600
Blades
In steel ASTM 516/70
Thickness = 40 mm
Equipment
Teeth Esco 18TL/25T
Pilot bit
Fixed with round shank chisel or with blade in special steel
Kelly box
200x200 mm
130x130 mm
Lower reamers plates in Hardox HB 400
Mobile upper reamer plate
Ventilation system to prevent the formation of vacuum during extraction



SINGLE OPENING
Up to pile diameter Ø 1000 mm



DOUBLE OPENING
Over pile diameter Ø 1000 mm



OD Casing Outer Diameter	ID Casing Inner Diameter	D Tool Cutting Edge	Weight
mm	mm	mm	kg
620	540	520	530
700	620	600	630
750	670	650	700
800	720	700	750
880	800	780	800
900	820	800	860
1000	920	900	980
1100	1020	1000	1150
1180	1100	1060	1220
1200	1120	1080	1270
1300	1220	1180	1320
1320	1240	1200	1390
1500	1400	1350	1590
1650	1550	1500	1880
1800	1700	1650	2150
1950	1850	1800	2400
2000	1880	1830	2520
2170	2050	2000	2850
2200	2080	2030	2900
2500	2380	2320	3580
2680	2560	2500	3950

Other dimensions are available on request

ROCK BUCKET

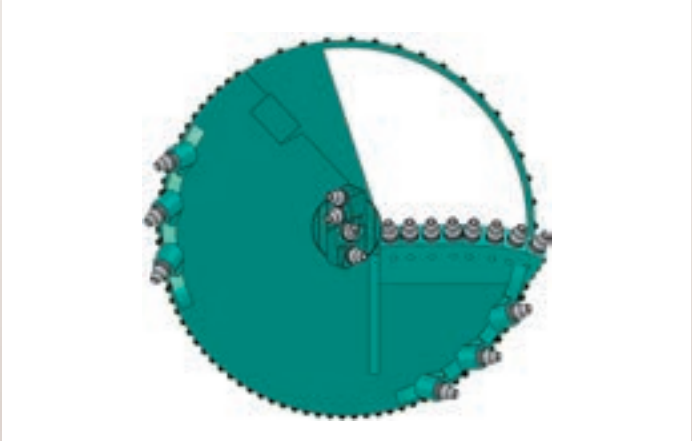
GOLD

MAIN USE

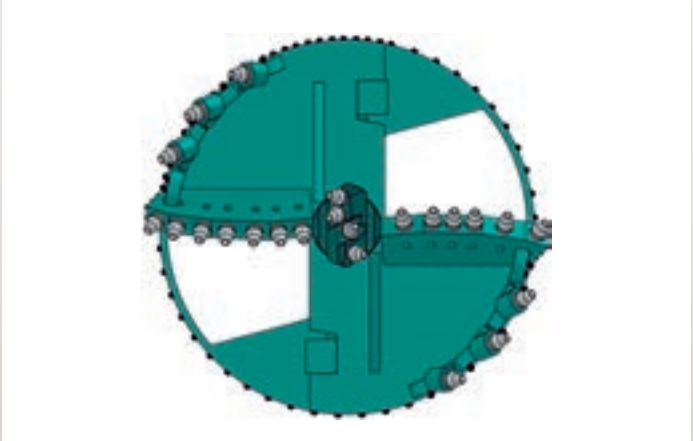
- Suitable for drilling in stratification with hardness range of 12.5 – 50 MPa
- Medium and hard Rock
- Very dense sand and gravel

TECHNICAL SPECIFICATIONS

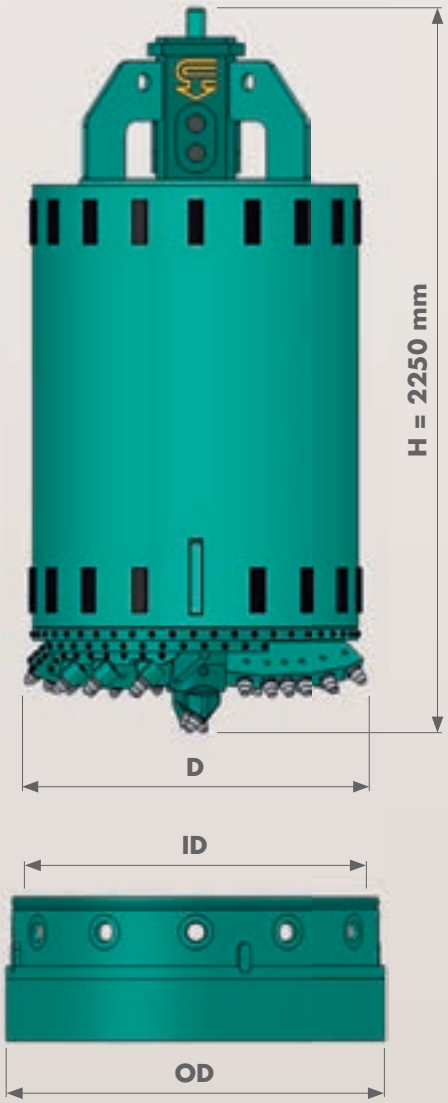
Cylinder
Made of steel ASTM 516/70
Thickness = 20 mm
Height = 1250 mm
Bottoms
Fixed bottom in steel ASTM 516/70
Thickness = 30/40 mm
Rotating bottom in Hardox HB 400
Thickness = 30/40 mm
Collar plates equipped with round shank chisel Ø 30/38 mm
Tung Studs HB 900
Blades
In Hardox HB 400
Thickness = 70 mm
Equipment
Betek round shank chisel Ø 30/38 mm
Rock Pilot bit
Interchangeable
Kelly box
200x200 mm made of heat-treated cast steel
130x130 mm
Upper and lower antiwear plates in Hardox HB 400
Lower reamers plates in Hardox HB 400
Mobile upper reamer plate
Ventilation system to prevent the formation of vacuum during extraction



SINGLE OPENING
Up to diameter Ø 1000 mm



DOUBLE OPENING
Over diameter Ø 1000 mm



OD Casing Outer Diameter	ID Casing Inner Diameter	D Tool Cutting Edge	Weight
mm	mm	mm	kg
620	540	520	660
700	620	600	760
750	670	650	820
800	720	700	880
880	800	780	1020
900	820	800	1040
1000	920	900	1150
1100	1020	1000	1280
1180	1100	1060	1380
1200	1120	1080	1430
1300	1220	1180	1580
1320	1240	1200	1650
1500	1400	1350	1830
1650	1550	1500	2150
1800	1700	1650	2400
1950	1850	1800	2750
2000	1880	1830	2950
2170	2050	2000	3150
2200	2080	2030	3250
2500	2380	2320	3950
2680	2560	2500	4350

Other dimensions are available on request

ROCK BUCKET

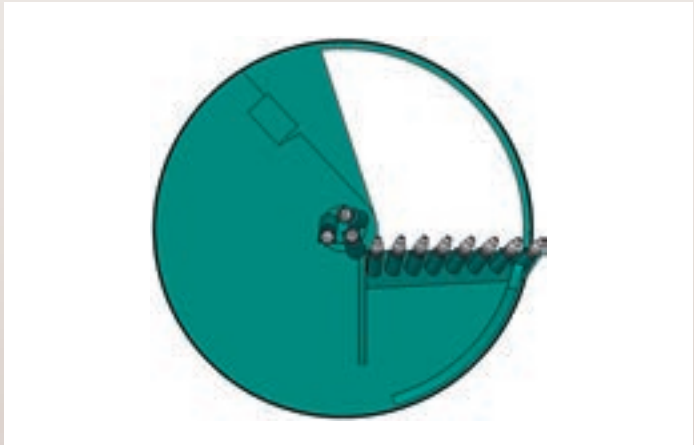
SILVER

MAIN USE

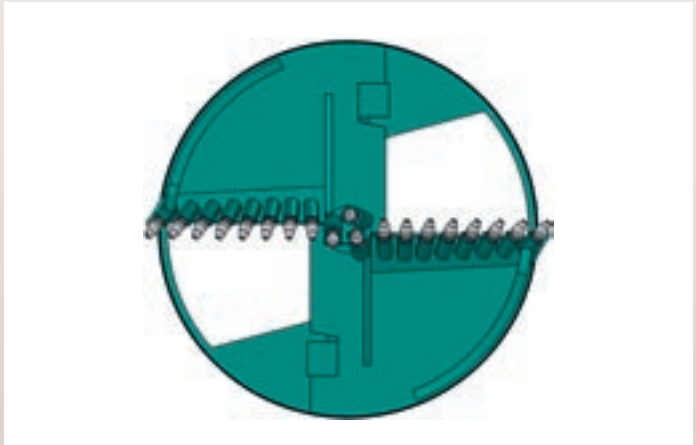
- Suitable for drilling in stratification with hardness range of12.5 – 50 MPa
- Weak and Medium Rock
- Dense sand and gravel

TECHNICAL SPECIFICATIONS

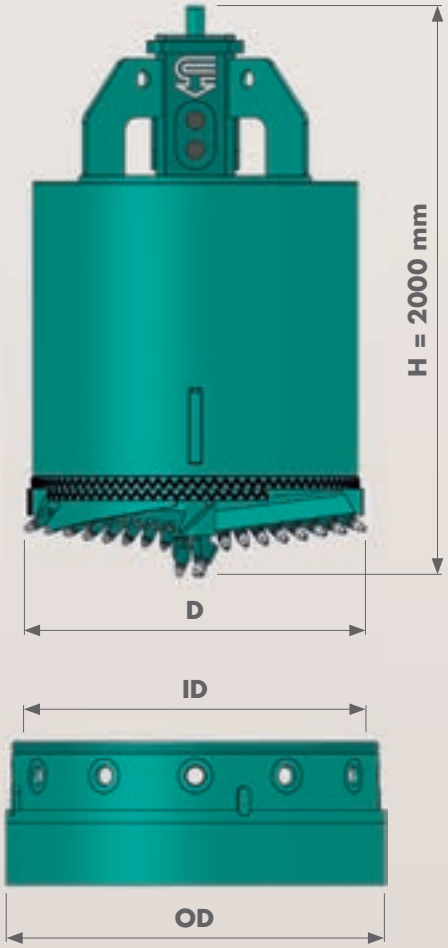
Cylinder
Made of steel ASTM 516/70
Thickness = 20 mm
Height = 1000 mm
Bottoms
Fixed and rotating bottom in steel ASTM 516/70
Thickness = 30/40 mm
Hard faced ribbings HB 600 on the bottoms
Blades
In steel ASTM 516/70
Thickness = 40 mm
Equipment
Betek Round Shank Chisel (1") 25.4 mm
Pilot bit
Fixed with round shank chisel or with blade in special steel
Kelly box
200x200 mm
130x130 mm
Lower reamers plates in Hardox HB 400
Mobile upper reamer plate
Ventilation system to prevent the formation of vacuum during extraction



SINGLE OPENING
Up to pile diameter Ø 1000 mm



DOUBLE OPENING
Over pile diameter Ø 1000 mm



OD Casing Outer Diameter	ID Casing Inner Diameter	D Tool Cutting Edge	Weight
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620	540	520	530
700	620	600	630
750	670	650	700
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880	800	780	800
900	820	800	860
1000	920	900	980
1100	1020	1000	1150
1180	1100	1060	1220
1200	1120	1080	1270
1300	1220	1180	1320
1320	1240	1200	1390
1500	1400	1350	1590
1650	1550	1500	1880
1800	1700	1650	2150
1950	1850	1800	2400
2000	1880	1830	2520
2170	2050	2000	2850
2200	2080	2030	2900
2500	2380	2320	3580
2680	2560	2500	3950

Other dimensions are available on request


B20C
XP

AUGERS

Casagrande production includes a wide range of **augers** for drilling layers of dry soil and rock in order to meet the requirements of different piles diameter.

Their shape can be straight or conical and they are designed in two different ways:

Single start cutting edge: suitable for drilling soils in presence of water and rock layers up to diameter 1000 mm. They are particularly indicated in case of casings application

Double start cutting edge: suitable for rock layers and bored pile over diameter 1000 mm

Conical auger is used for drilling very hard rock formations.

Its flights increase diameter gradually as a spiral and round shank chisels are placed along the borderline up to the cutting edge. So that rock formation can be ripped progressively with excellent results

All augers have central pipe diameter and thickness together with flights pitch and thickness designed accordingly with XP rotary torque and gravel compressive strength.

All flights thickness are provided with special wear protection HB 600/900.

They can be supplied with different type of Teeth and Round Shank Chisel accordingly with soil and rock hardness. Not only, their number and inclination are obtained trough a special software capable to guarantee high productivity.

Augers diameters match perfectly Casagrande casings in both alternatives: Screw and Labyrinth types.

Their dimensions can be changed on Client needs and they are available on request.

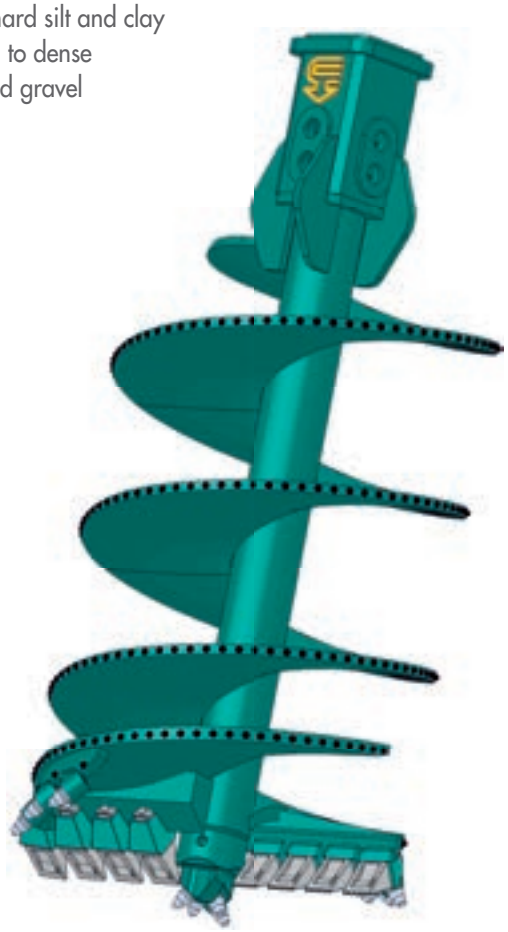
The weights are approximate values.

SOIL AUGER

GOLD

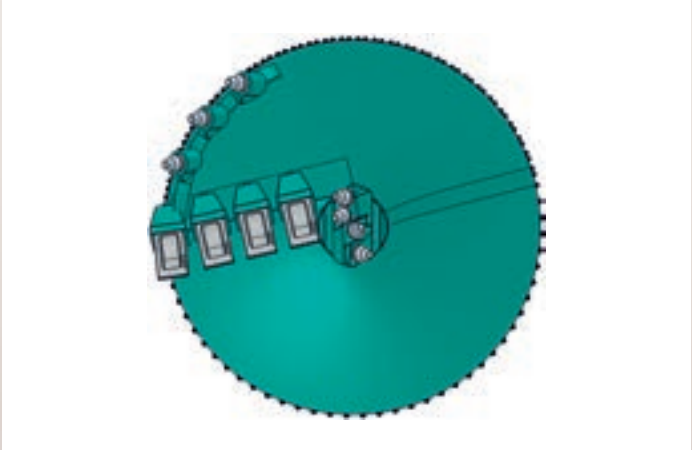
MAIN USE

- Suitable for drilling in stratification with hardness range of 0 – 12.5 MPa
- Dense to very dense sand and gravel
- Weak Rock
- Weathered rock
- Stiff to hard silt and clay
- Medium to dense sand and gravel



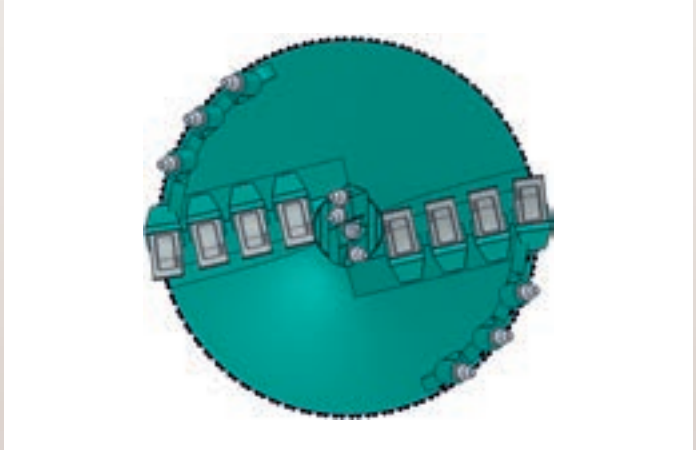
TECHNICAL SPECIFICATIONS

Central Pipe
Made of steel ASTM 516/70
Ø = 159/203 mm
Thickness = 25/30 mm
Flights
Made of steel ASTM 516/70
Thickness = 30/40 mm
Pitch = 300/600 mm
Tung Studs HB 900
Blades
In Hardox HB 400
Thickness = 70 mm
Equipment
Teeth Esco 18TL/25T, Esco Ultralock or Betek (recommended)
Rock Pilot bit
Interchangeable
Collar plates equipped with Betek round shank chisel Ø 30/38 mm
Kelly box
200x200 mm made of heat-treated cast steel
130x130 mm



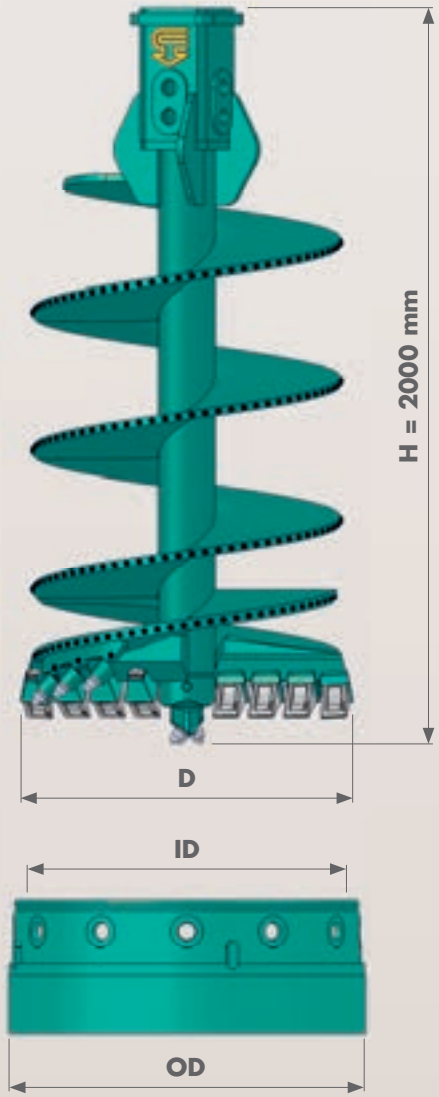
SINGLE CUT

Up to pile diameter Ø 1000 mm



DOUBLE CUT

Over pile diameter Ø 1000 mm



OD Casing Outer Diameter	ID Casing Inner Diameter	D Tool Cutting Edge	Weight
mm	mm	mm	kg
620	540	520	550
700	620	600	590
750	670	650	650
800	720	700	710
880	800	780	780
900	820	800	810
1000	920	900	970
1100	1020	1000	1100
1180	1100	1060	1120
1200	1120	1080	1150
1300	1220	1180	1210
1320	1240	1200	1240
1500	1400	1350	1550
1650	1550	1500	1820
1800	1700	1650	2010
1950	1850	1800	2450
2000	1880	1830	2500
2170	2050	2000	2860
2200	2080	2030	2950
2500	2380	2320	3950
2680	2560	2500	4700

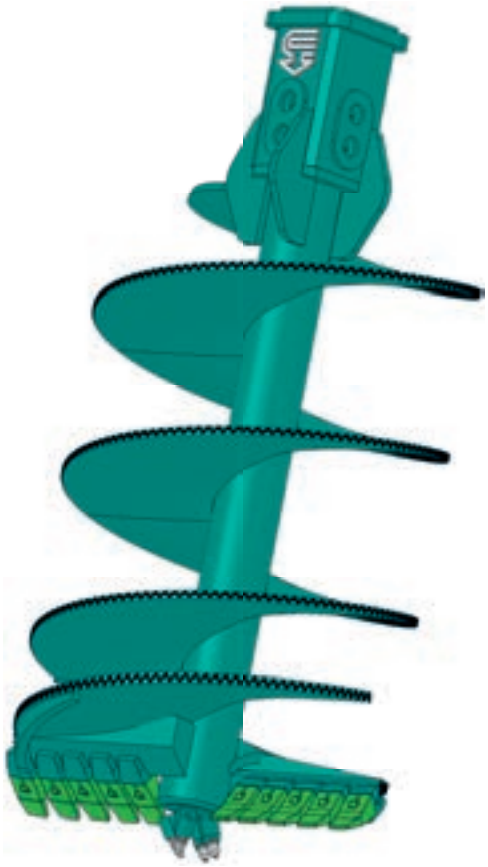
Other dimensions are available on request

SOIL AUGER

SILVER

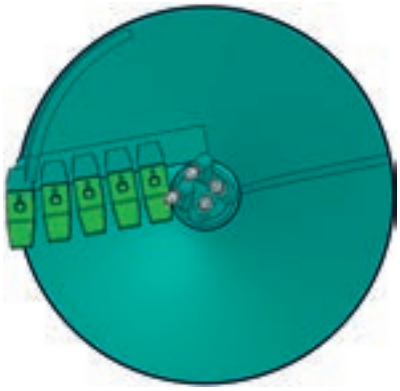
MAIN USE

- Suitable for drilling in stratification with hardness range of 0 – 12.5 MPa
- Fine up to dense sand and gravel
- Soft to stiff silt and clay
- Loose to medium dense sand and gravel



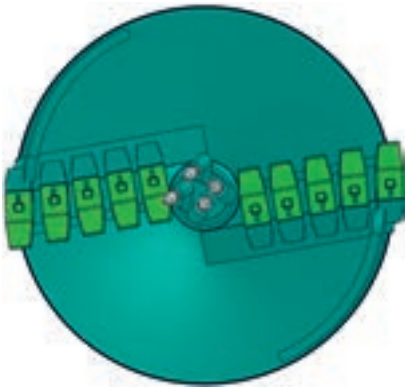
TECHNICAL SPECIFICATIONS

Central Pipe
Made of steel ASTM 516/70
Ø = 159/203 mm
Thickness = 25/30 mm
Flights
Made of steel ASTM 516/70
Thickness = 30/40 mm
Pitch = 300/600 mm
Hard faced ribbings HB 600
Equipment
Teeth Esco 18TL/25T
Pilot bit
Fixed with round shank chisel or with blade in special steel
Kelly box
200x200 mm
130x130 mm



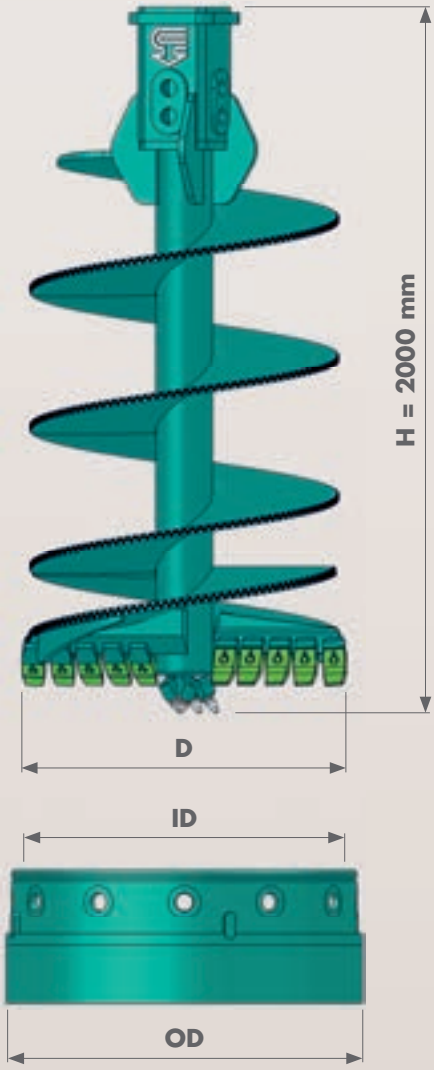
SINGLE CUT

Up to pile diameter Ø 1000 mm



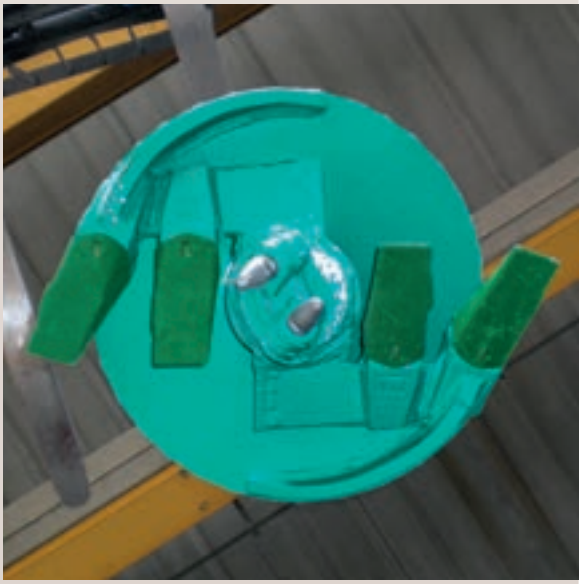
DOUBLE CUT

Over pile diameter Ø 1000 mm



OD Casing Outer Diameter	ID Casing Inner Diameter	D Tool Cutting Edge	Weight
mm	mm	mm	kg
620	540	520	500
700	620	600	530
750	670	650	560
800	720	700	580
880	800	780	620
900	820	800	670
1000	920	900	750
1100	1020	1000	900
1180	1100	1060	1020
1200	1120	1080	1050
1300	1220	1180	1100
1320	1240	1200	1160
1500	1400	1350	1360
1650	1550	1500	1700
1800	1700	1650	1980
1950	1850	1800	2260
2000	1880	1830	2300
2170	2050	2000	2650
2200	2080	2030	2780
2500	2380	2320	3680
2680	2560	2500	4350

Other dimensions are available on request



ROCK AUGER

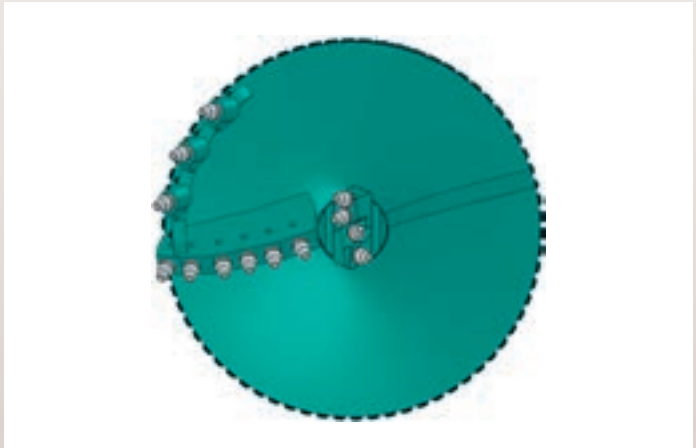
GOLD

MAIN USE

- Suitable for drilling in stratification with hardness range of 0 – 12.5 MPa
- Medium to hard rock
- Very dense sand and gravel

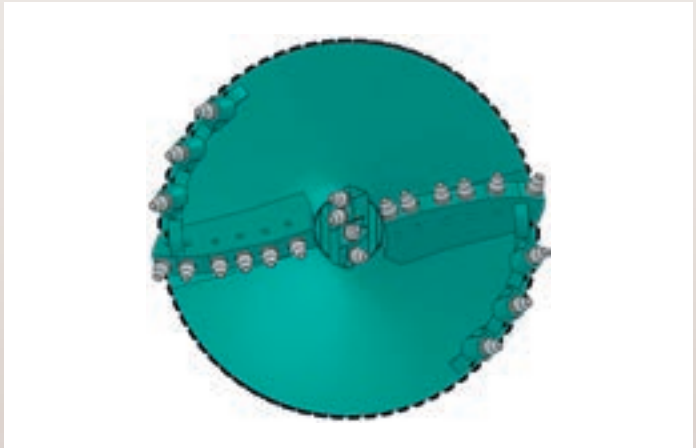
TECHNICAL SPECIFICATIONS

Central Pipe
Made of steel ASTM 516/70
Ø = 159/203 mm
Thickness = 25/30 mm
Flights
Made of steel ASTM 516/70
Thickness = 30/40 mm
Pitch = 300/600 mm
Tung Studs HB 900
Blades
In Hardox HB 400
Thickness = 70 mm
Equipment
Betek round shank chisel Ø 30/38 mm
Rock Pilot bit
Interchangeable
Collar plates equipped with Betek round shank chisel Ø 30/38 mm
Kelly box
200x200 mm made of heat-treated cast steel
130x130 mm



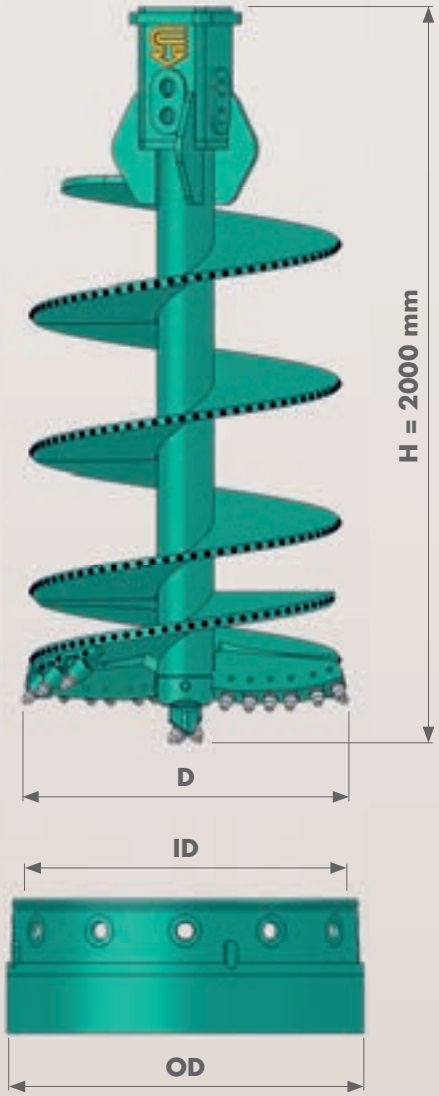
SINGLE CUT

Up to pile diameter Ø 1000 mm



DOUBLE CUT

Over pile diameter Ø 1000 mm



OD Casing Outer Diameter	ID Casing Inner Diameter	D Tool Cutting Edge	Weight
mm	mm	mm	kg
620	540	520	550
700	620	600	590
750	670	650	650
800	720	700	710
880	800	780	780
900	820	800	810
1000	920	900	970
1100	1020	1000	1100
1180	1100	1060	1120
1200	1120	1080	1150
1300	1220	1180	1210
1320	1240	1200	1240
1500	1400	1350	1550
1650	1550	1500	1820
1800	1700	1650	2010
1950	1850	1800	2450
2000	1880	1830	2500
2170	2050	2000	2860
2200	2080	2030	2950
2500	2380	2320	3950
2680	2560	2500	4700

Other dimensions are available on request

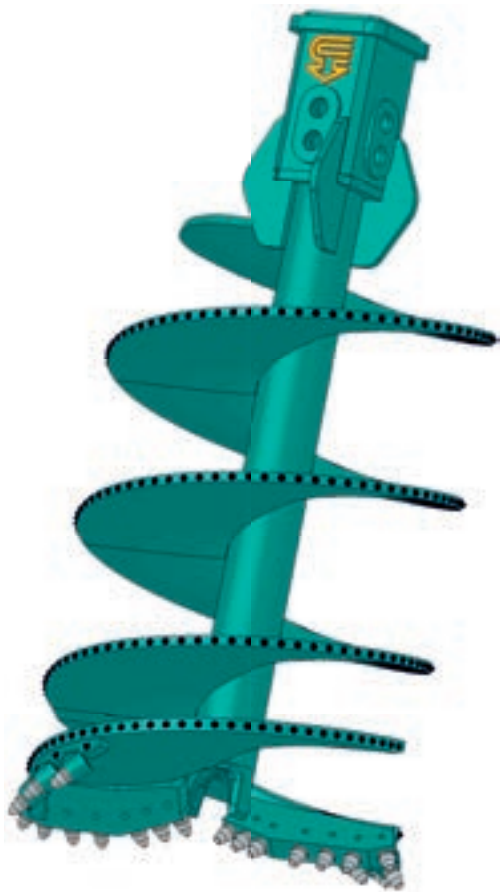
ROCK AUGER

WITHOUT PILOT BIT

GOLD

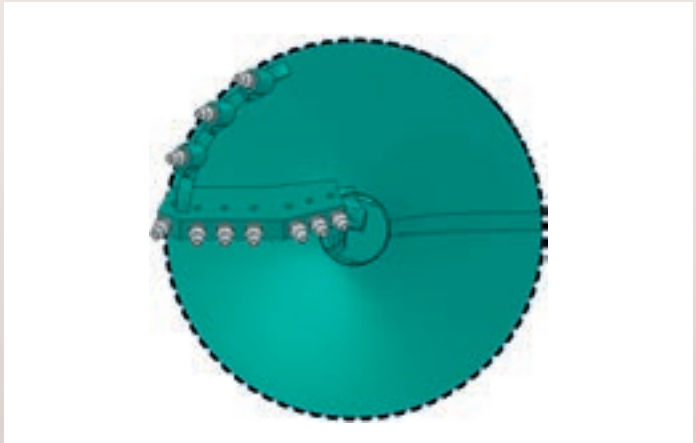
MAIN USE

- Suitable for drilling in stratification with hardness range of 12.5 – 50 MPa
- Hard to very hard rock
- Very suitable in fractured rock



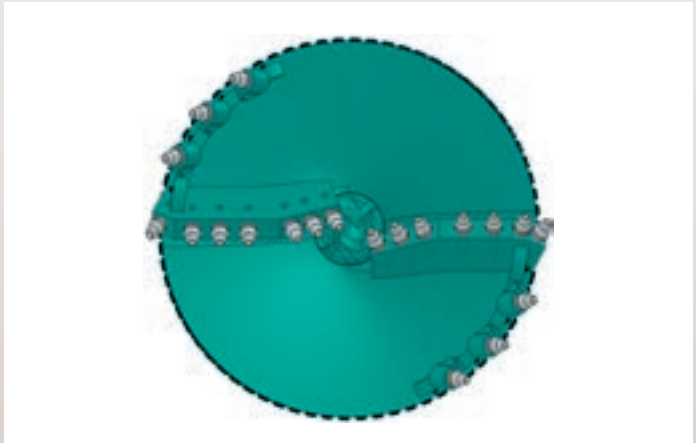
TECHNICAL SPECIFICATIONS

Central Pipe
Made of steel ASTM 516/70
Ø = 159/203 mm
Thickness = 25/30 mm
Flights
Made of steel ASTM 516/70
Thickness = 30/40 mm
Pitch = 300/600 mm
Tung Studs HB 900
Blades
In Hardox HB 400
Thickness = 70 mm
Equipment
Betek round shank chisel Ø 30/38 mm
Collar plates equipped with Betek round shank chisel Ø 30/38 mm
Kelly box
200x200 mm made of heat-treated cast steel
130x130 mm



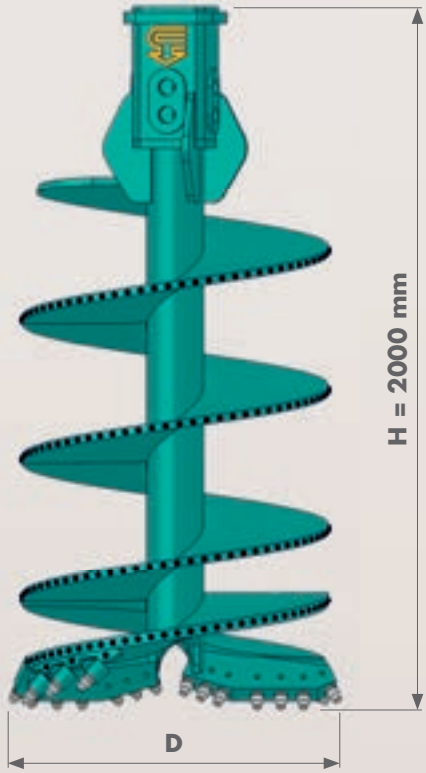
SINGLE CUT

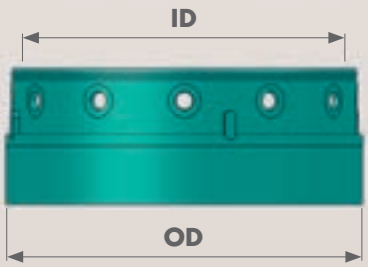
Up to pile diameter Ø 1000 mm



DOUBLE CUT

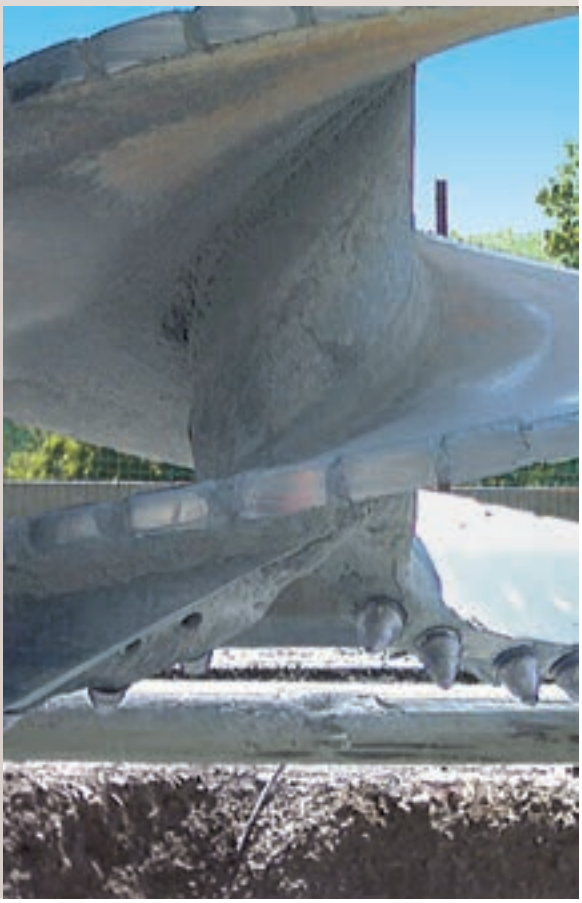
Over pile diameter Ø 1000 mm





OD Casing Outer Diameter	ID Casing Inner Diameter	D Tool Cutting Edge	Weight
mm	mm	mm	kg
620	540	520	520
700	620	600	560
750	670	650	630
800	720	700	680
880	800	780	750
900	820	800	780
1000	920	900	940
1100	1020	1000	1070
1180	1100	1060	1090
1200	1120	1080	1130
1300	1220	1180	1190
1320	1240	1200	1210
1500	1400	1350	1520
1650	1550	1500	1790
1800	1700	1650	1980
1950	1850	1800	2420
2000	1880	1830	1470
2170	2050	2000	2830
2200	2080	2030	2930
2500	2380	2320	3930
2680	2560	2500	4670

Other dimensions are available on request

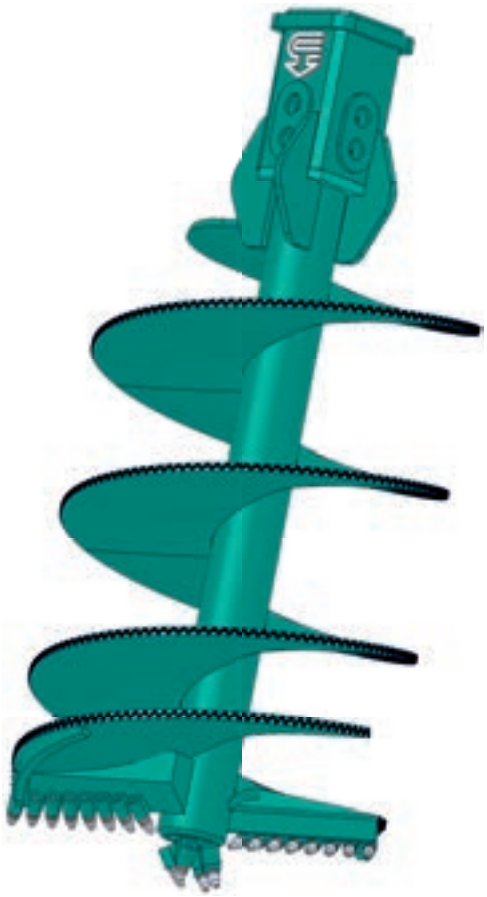


ROCK AUGER

SILVER

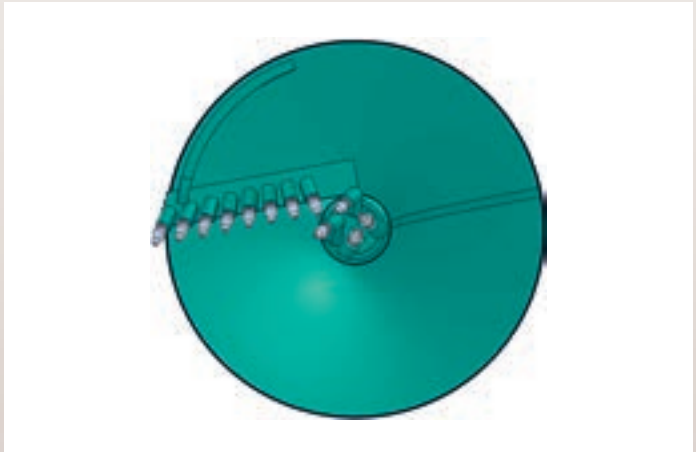
MAIN USE

· Suitable for drilling in stratification with hardness range of 0 – 12.5 MPa
· Medium to hard rock

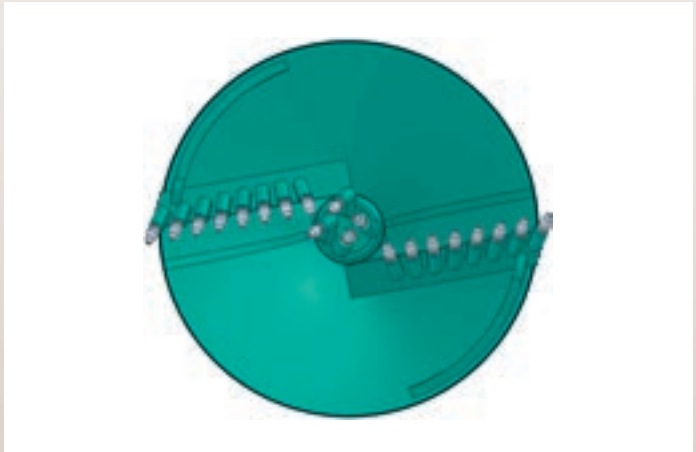


TECHNICAL SPECIFICATIONS

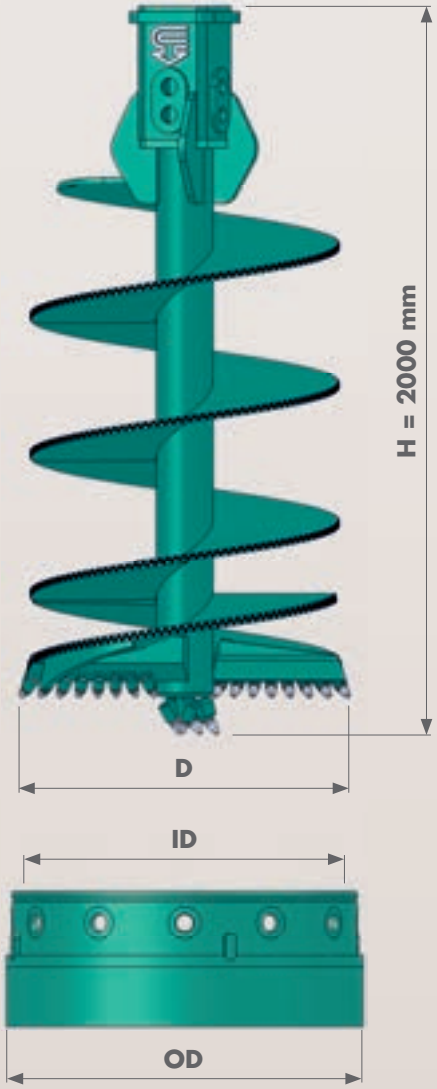
Central Pipe
Made of steel ASTM 516/70
Ø = 159/203 mm
Thickness = 25/30 mm
Flights
Made of steel ASTM 516/70
Thickness = 30/40 mm
Pitch = 300/600 mm
Hard faced ribbings HB 600
Equipment
Betek round shank chisel (1") 25.4 mm
Pilot bit
Fixed with round shank chisel or with blade in special steel
Kelly box
200x200 mm
130x130 mm



SINGLE CUT
Up to pile diameter Ø 1000 mm



DOUBLE CUT
Over pile diameter Ø 1000 mm



OD Casing Outer Diameter	ID Casing Inner Diameter	D Tool Cutting Edge	Weight
mm	mm	mm	kg
620	540	520	500
700	620	600	540
750	670	650	560
800	720	700	580
880	800	780	620
900	820	800	660
1000	920	900	750
1100	1020	1000	900
1180	1100	1060	1000
1200	1120	1080	1050
1300	1220	1180	1130
1320	1240	1200	1160
1500	1400	1350	1350
1650	1550	1500	1700
1800	1700	1650	1900
1950	1850	1800	2260
2000	1880	1830	2300
2170	2050	2000	2650
2200	2080	2030	2750
2500	2380	2320	3680
2680	2560	2500	4350

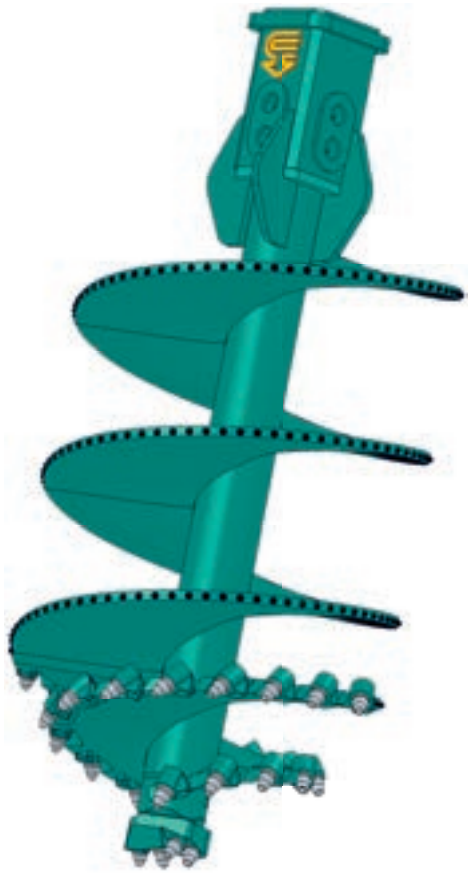
Other dimensions are available on request

CONICAL ROCK AUGER

GOLD

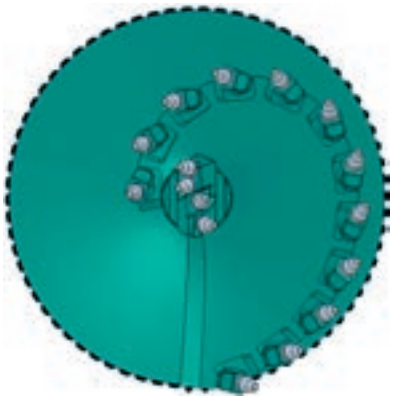
MAIN USE

- Suitable for drilling in stratification with hardness range of 12.5 – 50 MPa
- Moderately strong to strong rock

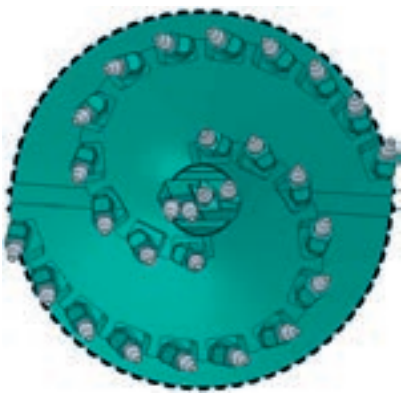


TECHNICAL SPECIFICATIONS

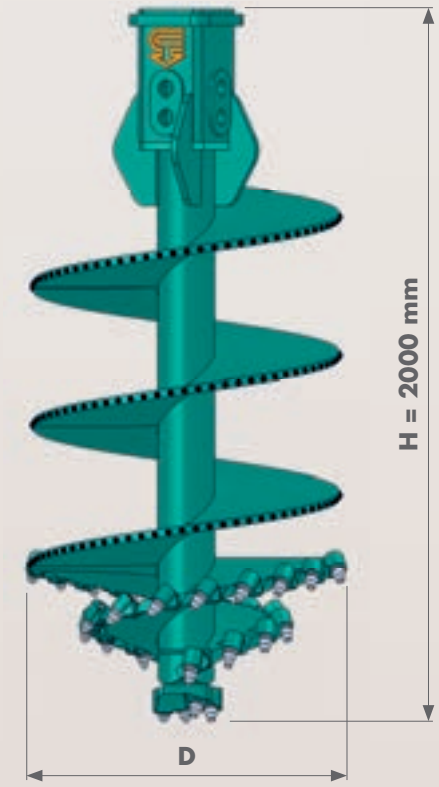
Central Pipe
Made of steel ASTM 516/70
Ø = 159/203 mm
Thickness = 25/30 mm
Flights
Made of steel ASTM 516/70
Thickness = 30/40 mm
Pitch = 300/600 mm
Tung Studs HB 900
Equipment
Betek round shank chisel Ø 30/38 mm
Rock Pilot bit
Interchangeable
Kelly box
200x200 mm made of heat-treated cast steel
130x130 mm

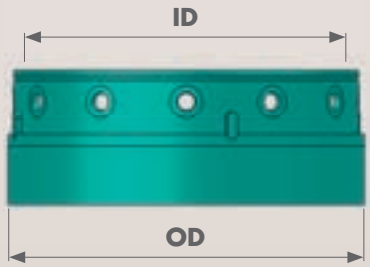


SINGLE CUT
Up to pile diameter Ø 1000 mm



DOUBLE CUT
Over pile diameter Ø 1000 mm





OD Casing Outer Diameter	ID Casing Inner Diameter	D Tool Cutting Edge	Weight
mm	mm	mm	kg
620	540	520	500
700	620	600	530
750	670	650	560
800	720	700	580
880	800	780	620
900	820	800	670
1000	920	900	750
1100	1020	1000	900
1180	1100	1060	1020
1200	1120	1080	1050
1300	1220	1180	1100
1320	1240	1200	1160
1500	1400	1350	1360
1650	1550	1500	1700
1800	1700	1650	1980
1950	1850	1800	2260
2000	1880	1830	2300
2170	2050	2000	2650
2200	2080	2030	2780
2500	2380	2320	3680
2680	2560	2500	4350

Other dimensions are available on request

CONICAL ROCK AUGER

DOUBLE FLIGHT FOR ALL LENGTH

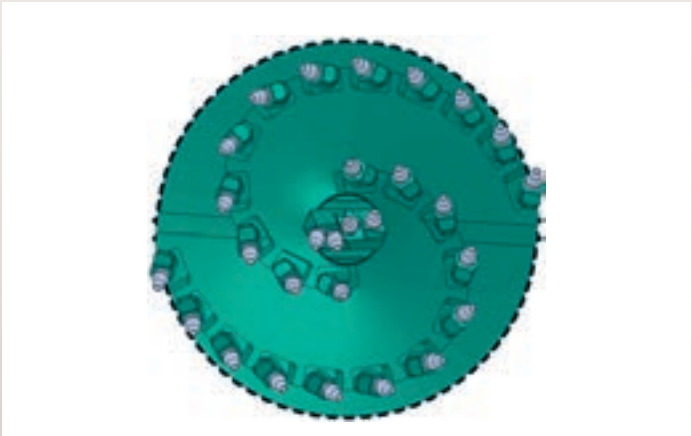
GOLD

MAIN USE

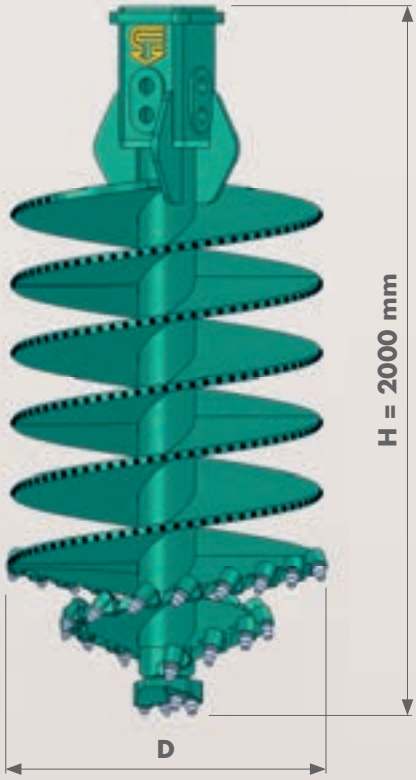
· Suitable for drilling in stratification with hardness range of 50 – 100 MPa
· Moderately strong to strong rock

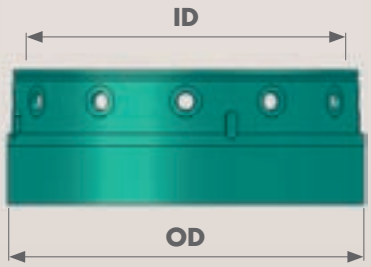
TECHNICAL SPECIFICATIONS

Central Pipe
Made of steel ASTM 516/70
Ø = 159/203 mm
Thickness = 25/30 mm
Flights
Made of steel ASTM 516/70
Thickness = 30/40 mm
Double pitch = 300/600 mm
Tung Studs HB 900
Equipment
Betek round shank chisel Ø 30/38 mm
Rock Pilot bit
Interchangeable
Kelly box
200x200 mm made of heat-treated cast steel
130x130 mm



DOUBLE CUT AND DOUBLE FLIGHT FOR ALL LENGTH





OD Casing Outer Diameter	ID Casing Inner Diameter	D Tool Cutting Edge	Weight
mm	mm	mm	kg
620	540	520	660
700	620	600	760
750	670	650	800
800	720	700	940
880	800	780	970
900	820	800	990
1000	920	900	1100
1100	1020	1000	1300
1180	1100	1060	1400
1200	1120	1080	1450
1300	1220	1180	1650
1320	1240	1200	1720
1500	1400	1350	2200
1650	1550	1500	2550
1800	1700	1650	2850
1950	1850	1800	3620
2000	1880	1830	3700
2170	2050	2000	4250
2200	2080	2030	4380
2500	2380	2320	5900
2680	2560	2500	6950

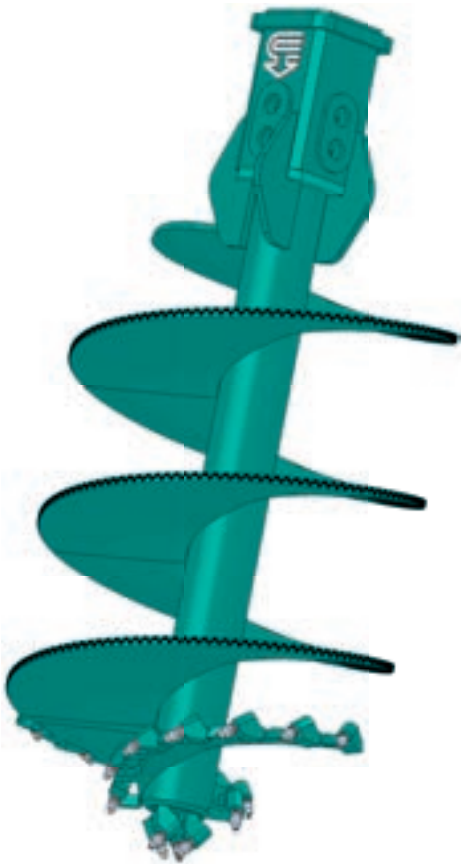
Other dimensions are available on request

CONICAL ROCK AUGER

SILVER

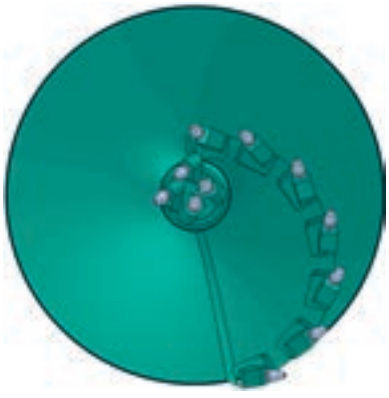
MAIN USE

- Suitable for drilling in stratification with hardness range of 12.5 – 50 MPa
- Moderately strong rock

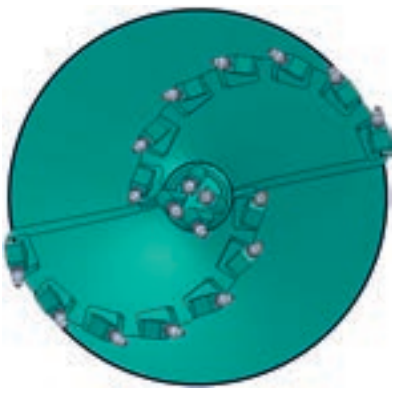


TECHNICAL SPECIFICATIONS

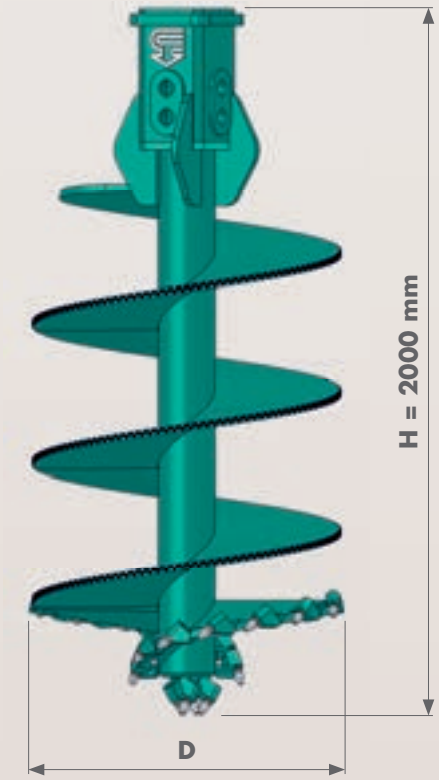
Central Pipe
Made of steel ASTM 516/70
Ø = 159/203 mm
Thickness = 25/30 mm
Flights
Made of steel ASTM 516/70
Thickness = 30/40 mm
Pitch = 300/600 mm
Hard faced ribbings HB 600
Equipment
Betek round shank chisel 1″ (25.4 mm)
Pilot bit
Fixed with round shank chisel or with blade in special steel
Kelly box
200x200 mm
130x130 mm

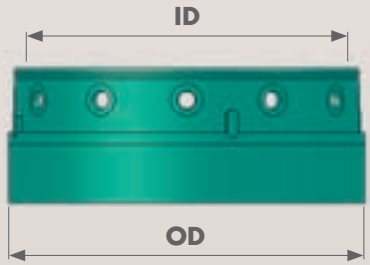


SINGLE CUT
Up to pile diameter Ø 1000 mm



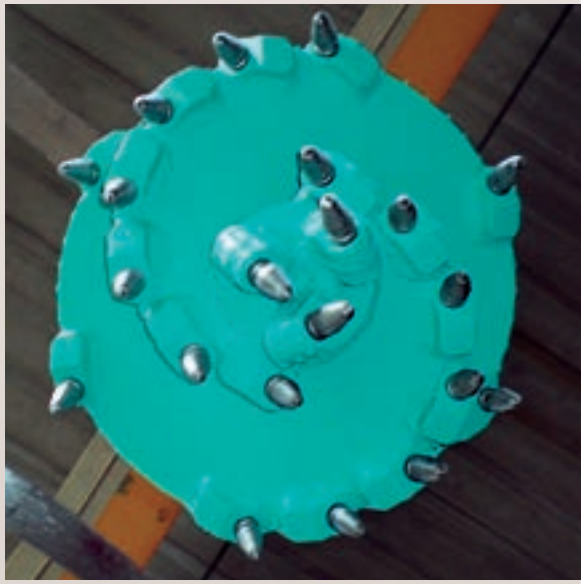
DOUBLE CUT
Over pile diameter Ø 1000 mm





OD Casing Outer Diameter	ID Casing Inner Diameter	D Tool Cutting Edge	Weight
mm	mm	mm	kg
620	540	520	500
700	620	600	530
750	670	650	560
800	720	700	580
880	800	780	620
900	820	800	670
1000	920	900	750
1100	1020	1000	900
1180	1100	1060	1020
1200	1120	1080	1050
1300	1220	1180	1100
1320	1240	1200	1160
1500	1400	1350	1360
1650	1550	1500	1700
1800	1700	1650	1980
1950	1850	1800	2260
2000	1880	1830	2300
2170	2050	2000	2650
2200	2080	2030	2780
2500	2380	2320	3680
2680	2560	2500	4350

Other dimensions are available on request



CORE BARRELS

Core barrel is used for cutting annular ring in rock, concrete and in steel reinforced concrete; consequentially the centre core can be broken using chisel, rock auger or Cross Core Barrel.

Using core barrel is possible to increase considerably pressure and torque on the cutting ring which can be equipped with different type of round shank chisel, quick change bars and roller bits.

Core Barrel diameters match perfectly Casagrande casings in both alternatives: Screw and Labyrinth types.

Their dimensions can be changed on Client needs and they are available on request.

The weights are approximate values.

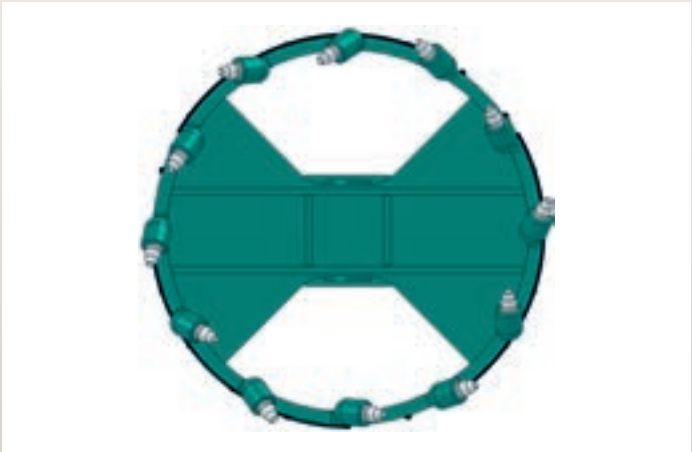
GOLD

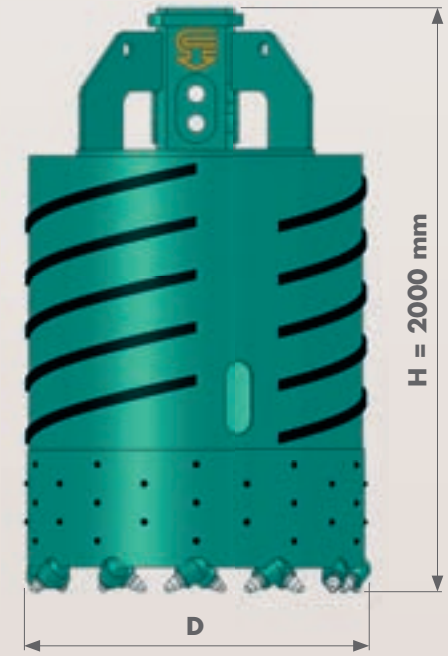
MAIN USE

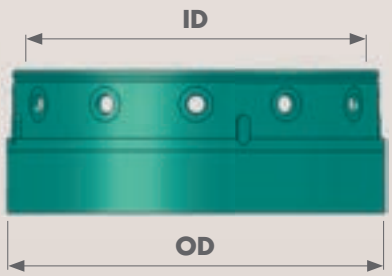
· Suitable for drilling in stratification with hardness range of 50 – 100 MPa
· Suitable for cutting through fissured and fractured strong rock

TECHNICAL SPECIFICATIONS

Cylinder
Made of steel ASTM 516/70
Thickness = 20 mm
Height = 1000 mm
Cutting ring
Made of steel ASTM 516/70
Thickness = 40 mm
Height = 400 mm
Equipment
Betek round shank chisel Ø = 30/38 mm
Kelly box
200x200 mm made of heat-treated cast steel
130x130 mm
Antiwear plates in Hardox HB 400 on the cylinder
Tung Studs HB 900 on the cutting ring
Core ejection system on request

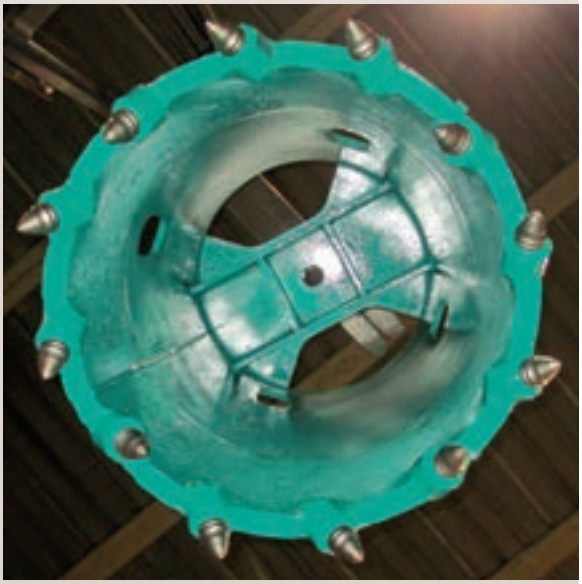






OD Casing Outer Diameter	ID Casing Inner Diameter	D Tool Cutting Edge	Weight
mm	mm	mm	kg
620	540	520	540
700	620	600	630
750	670	650	720
800	720	700	800
880	800	780	850
900	820	800	960
1000	920	900	1100
1100	1020	1000	1220
1180	1100	1060	1300
1200	1120	1080	1350
1300	1220	1180	1430
1320	1240	1200	1490
1500	1400	1350	1710
1650	1550	1500	1900
1800	1700	1650	2100
1950	1850	1800	2350
2000	1880	1830	2450
2170	2050	2000	2650
2200	2080	2030	2850
2500	2380	2320	3100
2680	2560	2500	3400

Other dimensions are available on request



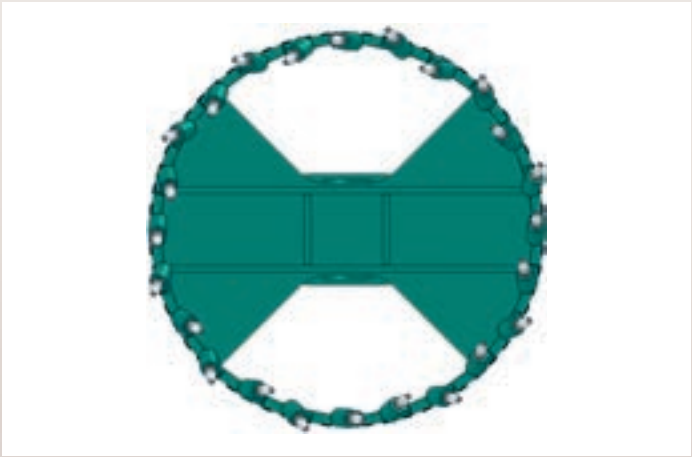
SILVER

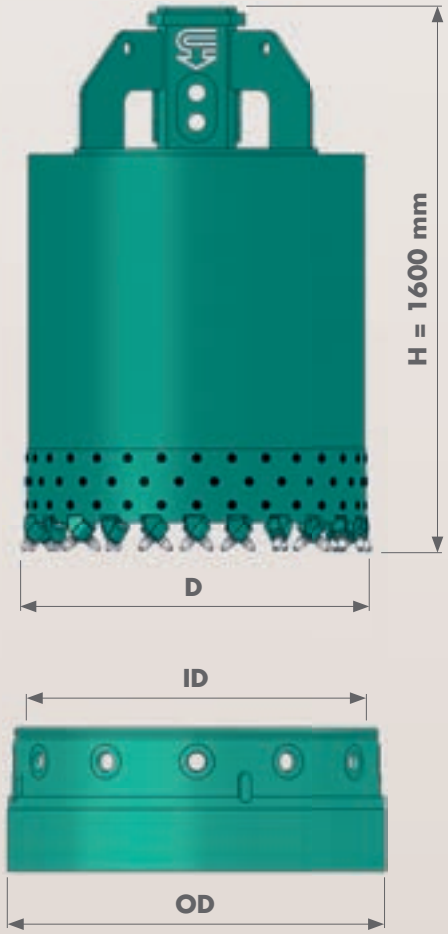
MAIN USE

- Suitable for drilling in stratification with hardness range of 50 – 100 MPa
- Generally used to cut fractured medium up to hard rock formation and partially fragmented medium up to hard rock formations

TECHNICAL SPECIFICATIONS

Cylinder
Made of steel ASTM 516/70
Thickness = 10/15 mm
Height = 800 mm
Cutting ring
Made of steel ASTM 516/70
Thickness = 25/30 mm
Height = 200 mm
Equipment
Betek round shank chisel Ø = 1″ (25.4 mm)
Kelly box
200x200 mm
130x130 mm
Hard faced ribbings HB 600 on the cutting ring
Core ejection system on request





OD Casing Outer Diameter	ID Casing Inner Diameter	D Tool Cutting Edge	Weight
mm	mm	mm	kg
620	540	520	370
700	620	600	430
750	670	650	480
800	720	700	520
880	800	780	590
900	820	800	620
1000	920	900	720
1100	1020	1000	820
1180	1100	1060	880
1200	1120	1080	900
1300	1220	1180	980
1320	1240	1200	1020
1500	1400	1350	1160
1650	1550	1500	1350
1800	1700	1650	1450
1950	1850	1800	1650
2000	1880	1830	1740
2170	2050	2000	1850
2200	2080	2030	1920
2500	2380	2320	2200
2680	2560	2500	2430

Other dimensions are available on request

CORE BARRELS · BRICK

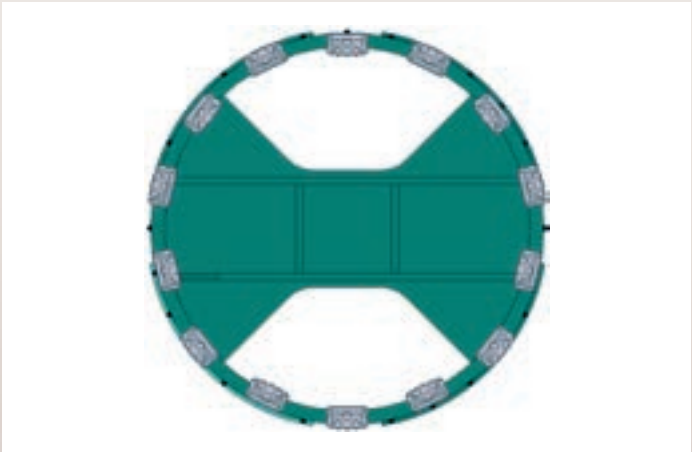
GOLD

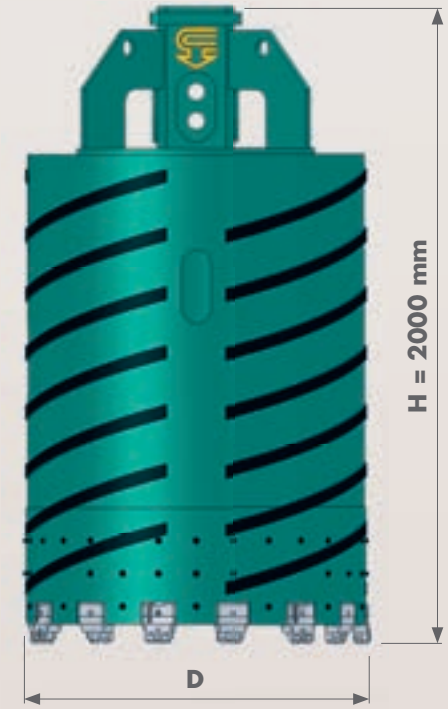
MAIN USE

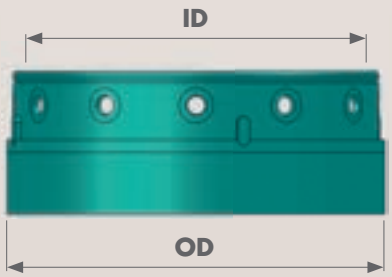
- Suitable for drilling in stratification with hardness range of 50 – 100 MPa
- Cross Core Barrel is used to break rock cores which remain in the borehole after using a standard core barrel.
- The core is broken with round shank chisels and the related broken parts are collected and removed with rock buckets

TECHNICAL SPECIFICATIONS

Cylinder
Made of steel ASTM 516/70
Thickness = 20 mm
Height = 1000 mm
Cutting ring
Made of steel ASTM 516/70
Thickness = 40 mm
Height = 400 mm
Equipment
Betek Interchangeable widia insert
Kelly box
200x200 mm made of heat-treated cast steel
130x130 mm
Antiwear plates in Hardox HB 400 on the cylinder
Tung Studs HB 900 on the cutting ring
Core ejection system on request

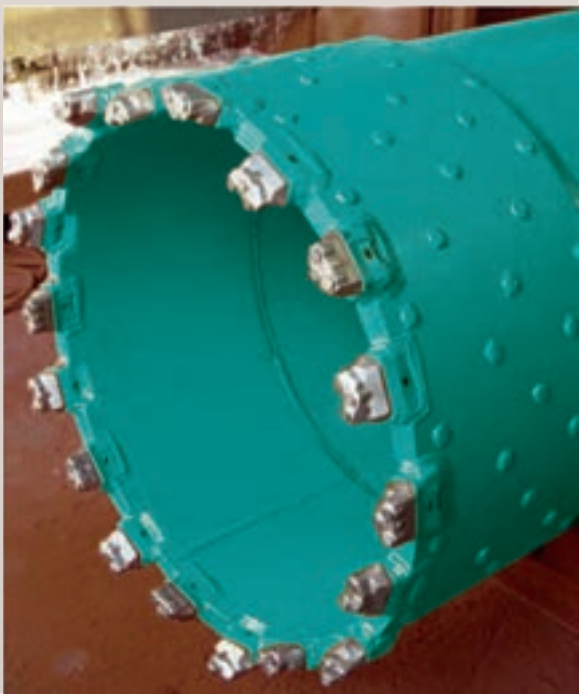






OD Casing Outer Diameter	ID Casing Inner Diameter	D Tool Cutting Edge	Weight
mm	mm	mm	kg
620	540	520	530
700	620	600	650
750	670	650	700
800	720	700	780
880	800	780	900
900	820	800	930
1000	920	900	1070
1100	1020	1000	1220
1180	1100	1060	1290
1200	1120	1080	1340
1300	1220	1180	1450
1320	1240	1200	1500
1500	1400	1350	1720
1650	1550	1500	1960
1800	1700	1650	2200
1950	1850	1800	2430
2000	1880	1830	2530
2170	2050	2000	2750
2200	2080	2030	2890
2500	2380	2320	3350
2680	2560	2500	3600

Other dimensions are available on request



SPECIAL TOOLS

Casagrande is committed to ensuring you get the exact drilling tools you need even in special cases.

We have expertise in design, developing and manufacturing special tools by diameter, height, shape, equipment and so on to meet our customers' specific requirements.

Innovation, quality and reliability are guaranteed, our sales engineers and customer support team bring years of experience with a variety of drilling rigs applications and challenges.

Cleaning Bucket, **Belling Bucket**, **Core Barrel Cross**, **Core Barrel Roller Bits** and **Chisel**, are examples of superior choice for increasing production capacity and quality.

When high performance and cost-cutting drilling rig are needed, Casagrande is prepared to meet your most demanding applications.

We can customize your selection and solving your drilling difficulties.

Contact us to get the special tool whenever you need.

CLEANING BUCKET

GOLD

MAIN USE

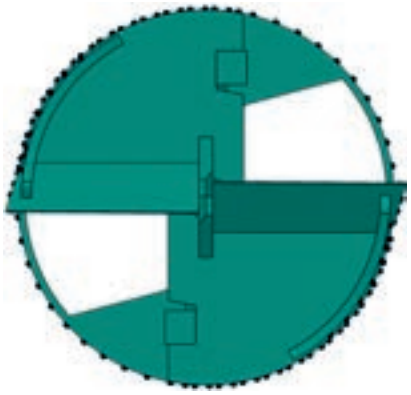
· For cleaning the bottom of pile in stratification with Hardness > 12.5 MPa

TECHNICAL SPECIFICATIONS

Cylinder
Made of steel ASTM 516/70
Thickness = 20 mm
Height = 1250 mm
Bottoms
Fixed bottom in steel ASTM 516/70
Thickness = 30/40 mm
Rotating bottom in Hardox HB 400
Thickness = 30/40 mm
Tung Studs HB 900
Blades
In Hardox HB 400
Thickness = 40 mm
Pilot bit
Fixed with blade in special steel
Kelly box
200x200 mm made of heat-treated cast steel
130x130 mm
Upper and lower antiwear plates in Hardox HB 400
Mobile upper reamer plate
Lower reamers plates in Hardox HB 400

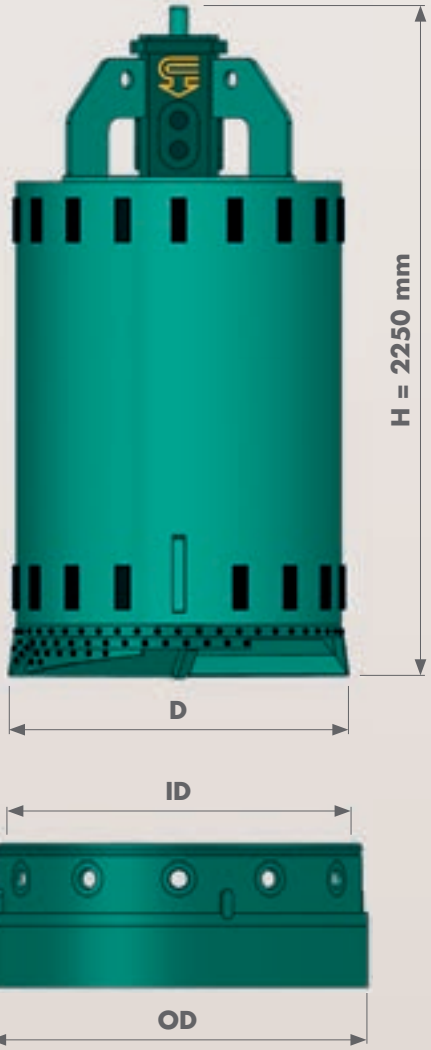
SINGLE OPENING

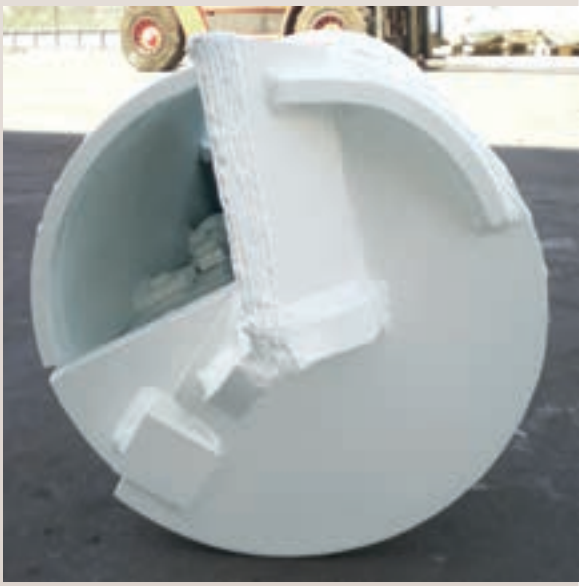
Up to pile diameter Ø 1000 mm

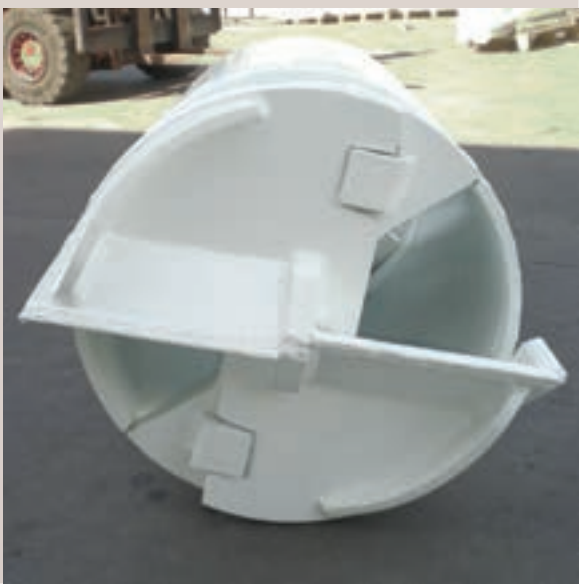


DOUBLE OPENING

Over pile diameter Ø 1000 mm







OD Casing Outer Diameter	ID Casing Inner Diameter	D Tool Cutting Edge	Weight
mm	mm	mm	kg
620	540	520	540
700	620	600	640
750	670	650	720
800	720	700	770
880	800	780	790
900	820	800	850
1000	920	900	950
1100	1020	1000	1120
1180	1100	1060	1220
1200	1120	1080	1250
1300	1220	1180	1320
1320	1240	1200	1400
1500	1400	1350	1600
1650	1550	1500	1900
1800	1700	1650	2180
1950	1850	1800	2380
2000	1880	1830	2550
2170	2050	2000	2850
2200	2080	2030	2900
2500	2380	2320	3300
2680	2560	2500	3650

Other dimensions are available on request

CLEANING BUCKET

SILVER

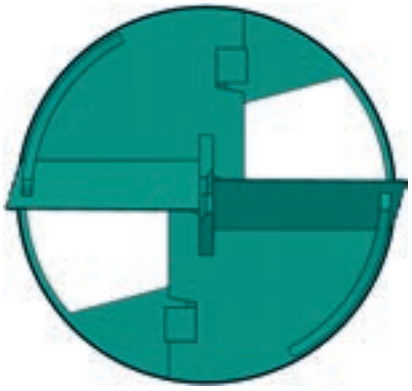
MAIN USE

· For cleaning the bottom of pile in stratification with Hardness range of 0 – 12.5 MPa

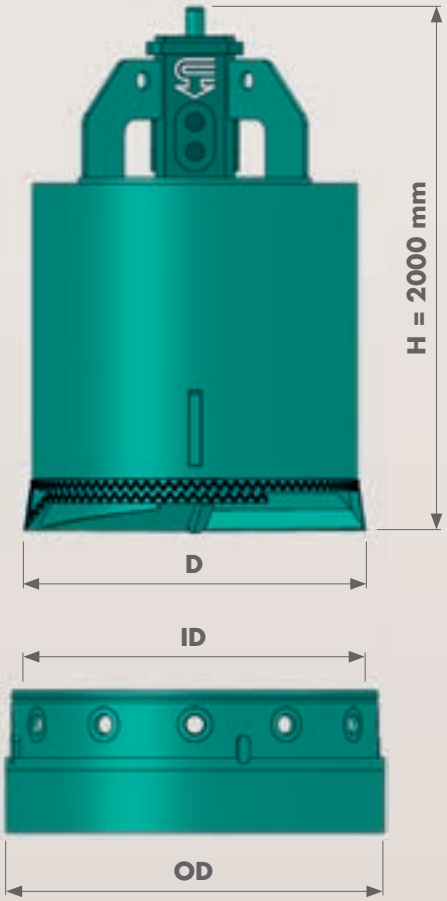
TECHNICAL SPECIFICATIONS

Cylinder
Made of steel ASTM 516/70
Thickness = 20 mm
Height = 1000 mm
Bottoms
Fixed and rotating bottom in steel ASTM 516/70
Thickness = 30/40 mm
Hard faced ribbings HB 600
Blades
In steel ASTM 516/70
Thickness = 40 mm
Pilot bit
Fixed with blade in special steel
Kelly box
200x200 mm
130x130 mm
Lower reamers plates in Hardox HB 400
Mobile upper reamer plate

SINGLE OPENING
Up to pile diameter Ø 1000 mm

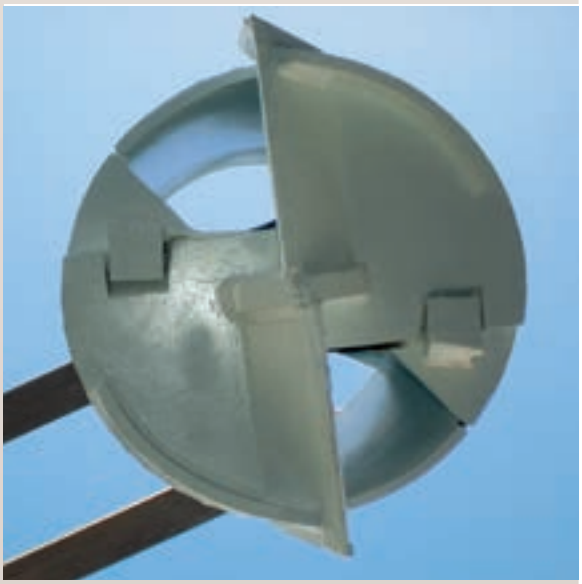


DOUBLE OPENING
Over pile diameter Ø 1000 mm



OD Casing Outer Diameter	ID Casing Inner Diameter	D Tool Cutting Edge	Weight
mm	mm	mm	kg
620	540	520	520
700	620	600	620
750	670	650	680
800	720	700	730
880	800	780	780
900	820	800	830
1000	920	900	950
1100	1020	1000	1120
1180	1100	1060	1190
1200	1120	1080	1240
1300	1220	1180	1280
1320	1240	1200	1350
1500	1400	1350	1550
1650	1550	1500	1830
1800	1700	1650	2100
1950	1850	1800	2330
2000	1880	1830	2450
2170	2050	2000	2750
2200	2080	2030	2800
2500	2380	2320	3200
2680	2560	2500	3550

Other dimensions are available on request

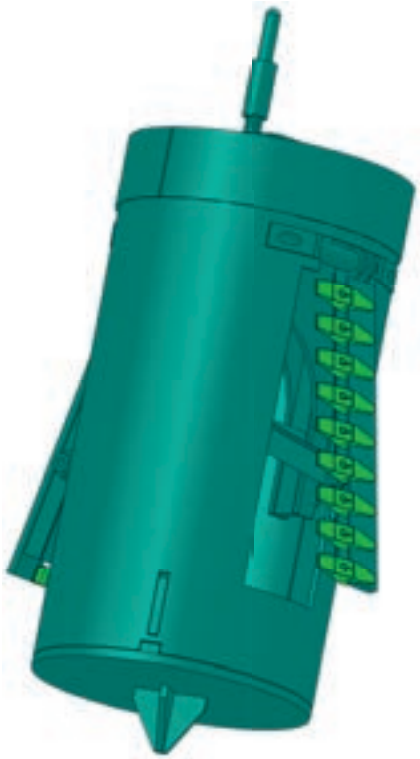


BELLING BUCKET

GOLD

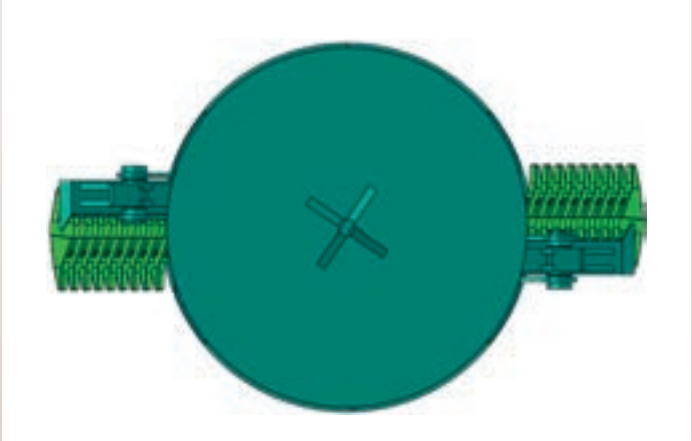
MAIN USE

For projects that require enlarged pile bases in cohesive materials these tools called Belling Buckets are designed for the use with high torque drilling rigs. The usual finished angle of bell is 60° and the standard increase of diameter is about 2 times the shaft diameter.
A vertical sliding yoke is mounted inside of the bucket. By transmitting a positive crowd force onto the yoke with the Kelly bar, leverage and torque are transmitted to 2 steel arms. These arms are pin jointed and carry drilling teeth. The spoil falls into the open shell of the bucket. When extracting the tool from the bore hole, the upward movement of the Kelly bar transmits the pull onto the yoke and the cutting arms are closed. The dumping of spoil is by manually operated bottom gate.



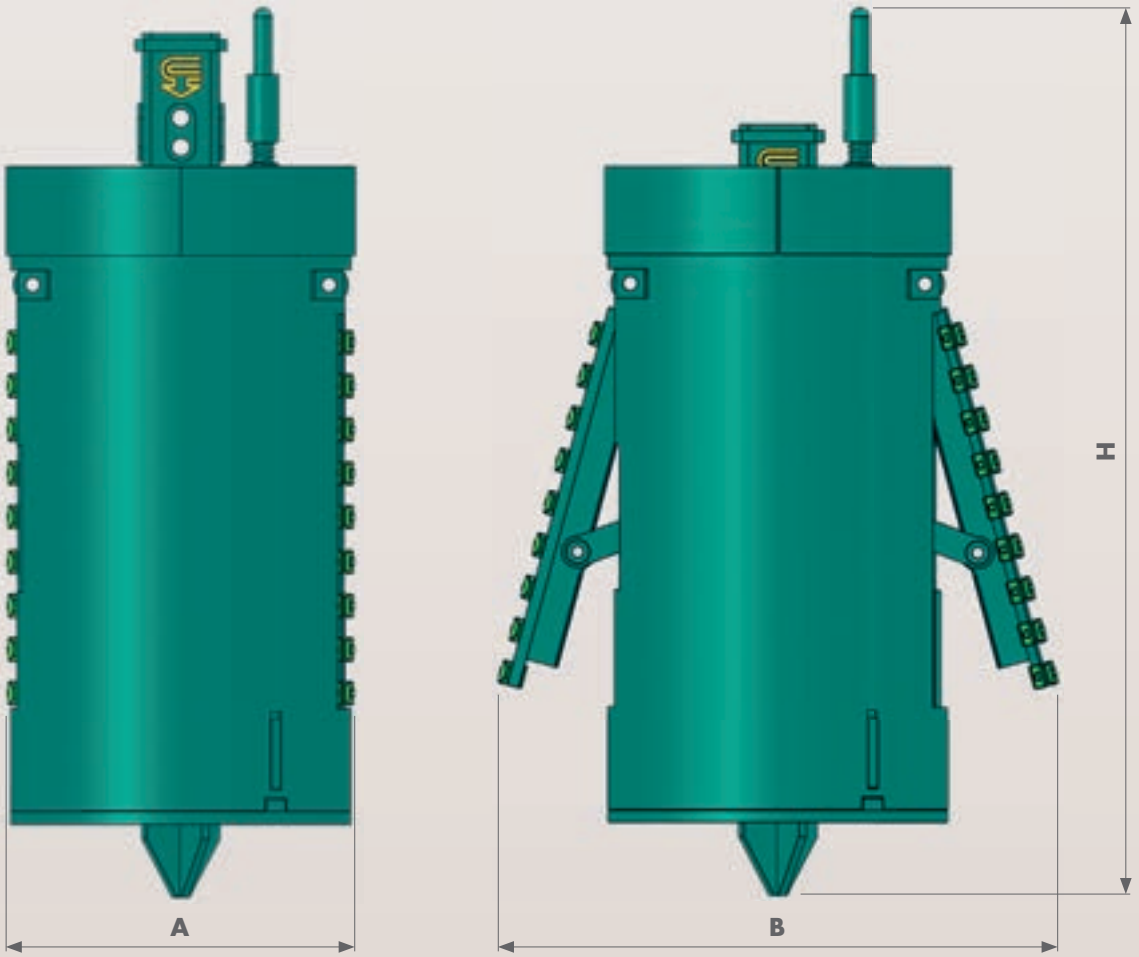
TECHNICAL SPECIFICATIONS

Cylinder
Made of steel ASTM 516/70
Thickness = 20 mm
Height = according to required reaming diameter
Bottoms
In Hardox HB 400
Thickness = 30/40 mm
Tung Studs HB 900
Mobile carriage
In Hardox HB 400
Equipment
Teeth Esco 18TL / 25T, Esco Ultralock, Betek (recommended)
Blades
In Hardox HB 400
Thickness = 40 mm
Pilot bit
Fixed with blade in special steel
Kelly box
200x200 mm made of heat-treated cast steel
130x130 mm



OPEN REAMER

CLOSED REAMER



A Closed Reamer	B Open Reamer	H Tool Height	Weight
mm	mm	mm	kg
500	1000	1800	1300
600	1200	2000	1400
700	1400	2200	1500
800	1600	2400	1700
900	1800	2600	2100
1000	2000	2800	2500
1100	2200	3000	2800
1200	2400	3200	3000
1300	2600	3400	3500
1400	2800	3600	4000
1500	3000	3800	4500

Other dimensions are available on request

CORE BARREL · CROSS

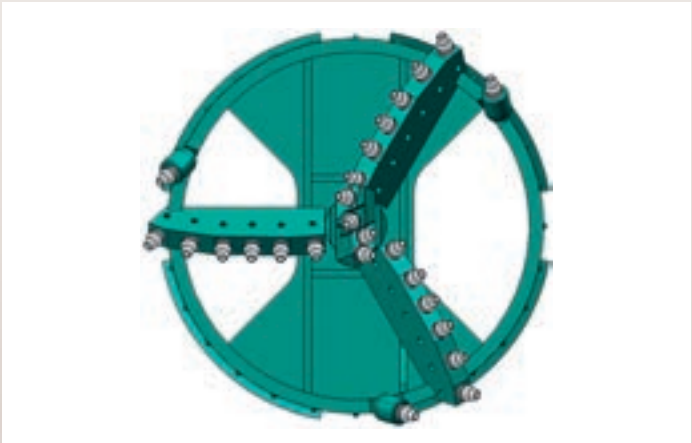
GOLD

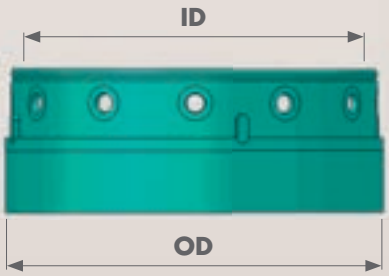
MAIN USE

- Suitable for drilling in stratification with hardness range of 50 – 100 MPa
- Cross Core Barrel is used to break rock cores which remain in the borehole after using a standard core barrel.
- The core is broken with round shank chisels and the related broken parts are collected and removed with rock buckets.

TECHNICAL SPECIFICATIONS

Cylinder
Made of steel ASTM 516/70
Thickness = 20 mm
Height = 1250 mm
Cutting ring
Made of steel ASTM 516/70
Thickness = 40 mm
Height = 400 mm
Central Pipe
Made of steel ASTM 516/70
Ø = 159/203 mm
Thickness = 25/30 mm
Blades
In Hardox HB 400
Thickness = 70 mm
Equipment
Betek round shank chisel Ø = 30/38 mm
Rock pilot bit
Interchangeabe
Collar plates equipped with Betek round shank chisel Ø 30/38 mm
Kelly box
200x200 mm made of heat-treated cast steel
130x130 mm
Antiwear plates in Hardox HB 400 on the cylinder
Tung Studs HB 900 on the cutting ring





OD Casing Outer Diameter	ID Casing Inner Diameter	D Tool Cutting Edge	Weight
mm	mm	mm	kg
620	540	520	730
700	620	600	860
750	670	650	920
800	720	700	1000
880	800	780	1100
900	820	800	1150
1000	920	900	1310
1100	1020	1000	1470
1180	1100	1060	1580
1200	1120	1080	1650
1300	1220	1180	1750
1320	1240	1200	1800
1500	1400	1350	2030
1650	1550	1500	2250
1800	1700	1650	2450
1950	1850	1800	2780
2000	1880	1830	2950
2170	2050	2000	3120
2200	2080	2030	3250
2500	2380	2320	3650
2680	2560	2500	3950

Other dimensions are available on request

CORE BARREL · ROLLER BITS

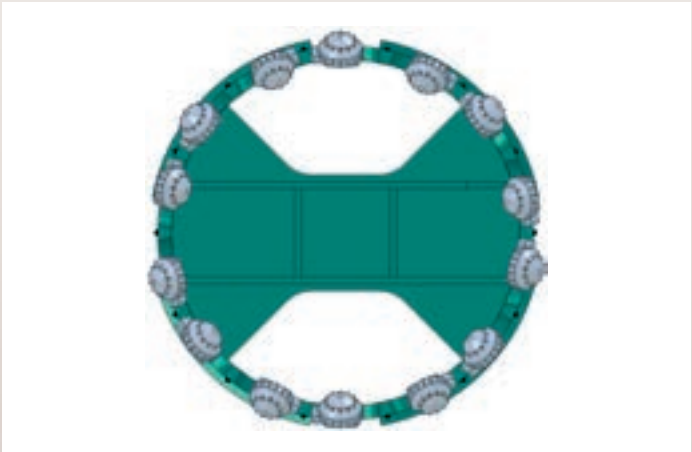
GOLD

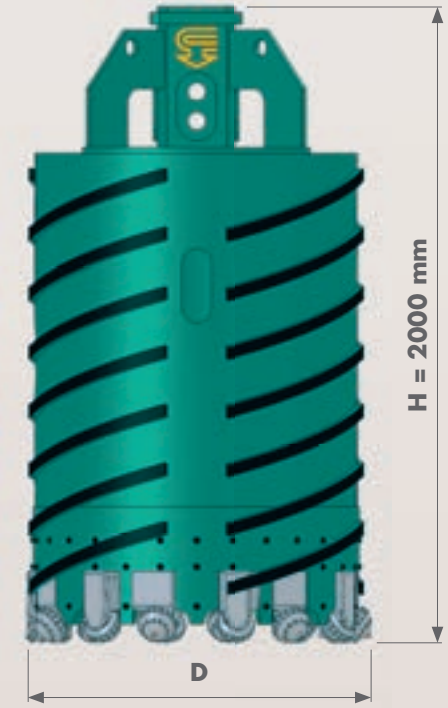
MAIN USE

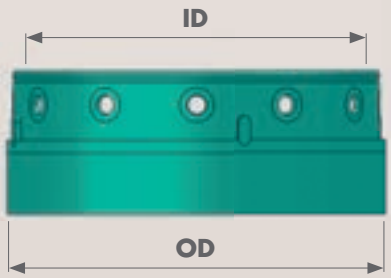
- Suitable for drilling in stratification with Hardness > 100 MPa
- Special roller bits cut the annular slot for a width of 200 / 300 mm making the rock fractured in many chippings
- The centre core can be broken using chisel, rock auger or Cross Core Barrel.
- Rock Bucket is recommended to collect and remove all broken rock parts from the pile

TECHNICAL SPECIFICATIONS

Cylinder
Made of steel ASTM 516/70
Thickness = 20 mm
Height = 1000 mm
Cutting ring
Made of steel ASTM 516/70
Thickness = 40 mm
Height = 400 mm
Equipment
Roller bits
Kelly box
200x200 mm made of heat-treated cast steel
130x130 mm
Antiwear plates in Hardox HB 400 on the cylinder
Tung Studs HB 900 on the cutting ring







OD Casing Outer Diameter	ID Casing Inner Diameter	D Tool Cutting Edge	Weight
mm	mm	mm	kg
620	540	520	570
700	620	600	690
750	670	650	780
800	720	700	840
880	800	780	930
900	820	800	980
1000	920	900	1150
1100	1020	1000	1290
1180	1100	1060	1390
1200	1120	1080	1450
1300	1220	1180	1590
1320	1240	1200	1660
1500	1400	1350	1780
1650	1550	1500	2090
1800	1700	1650	2260
1950	1850	1800	2580
2000	1880	1830	2700
2170	2050	2000	2950
2200	2080	2030	3200
2500	2380	2320	3450
2680	2560	2500	3800

Other dimensions are available on request

PILE CHISEL

GOLD

MAIN USE

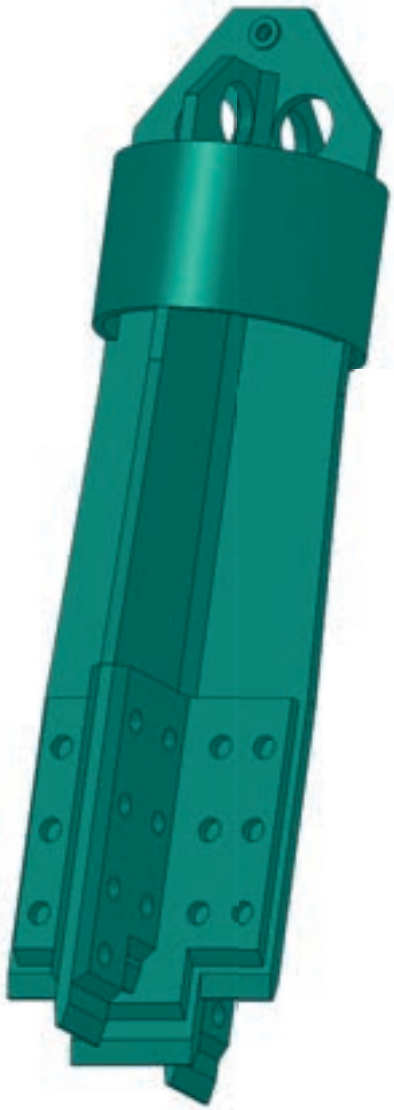
The chisel is usually used in combination with grabs to pound and fracture stratification with hardness > of 100 MPa

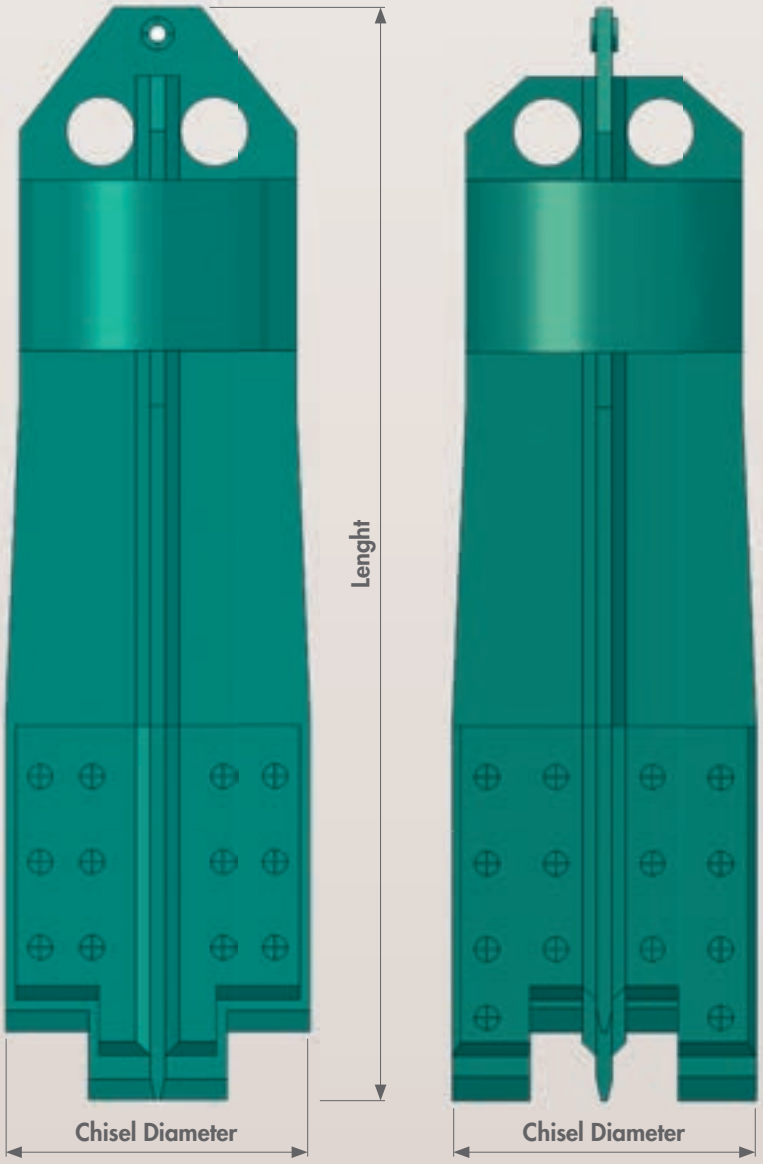
It is made of high quality steel with

- Hard faced lower cutting edges in Hardox steel plate
- On upper ring which reinforces the whole structure and guides the chisel without damaging the casing during the excavation
- A swivel, fitted to the chisel body which assures long rope life

TECHNICAL SPECIFICATIONS

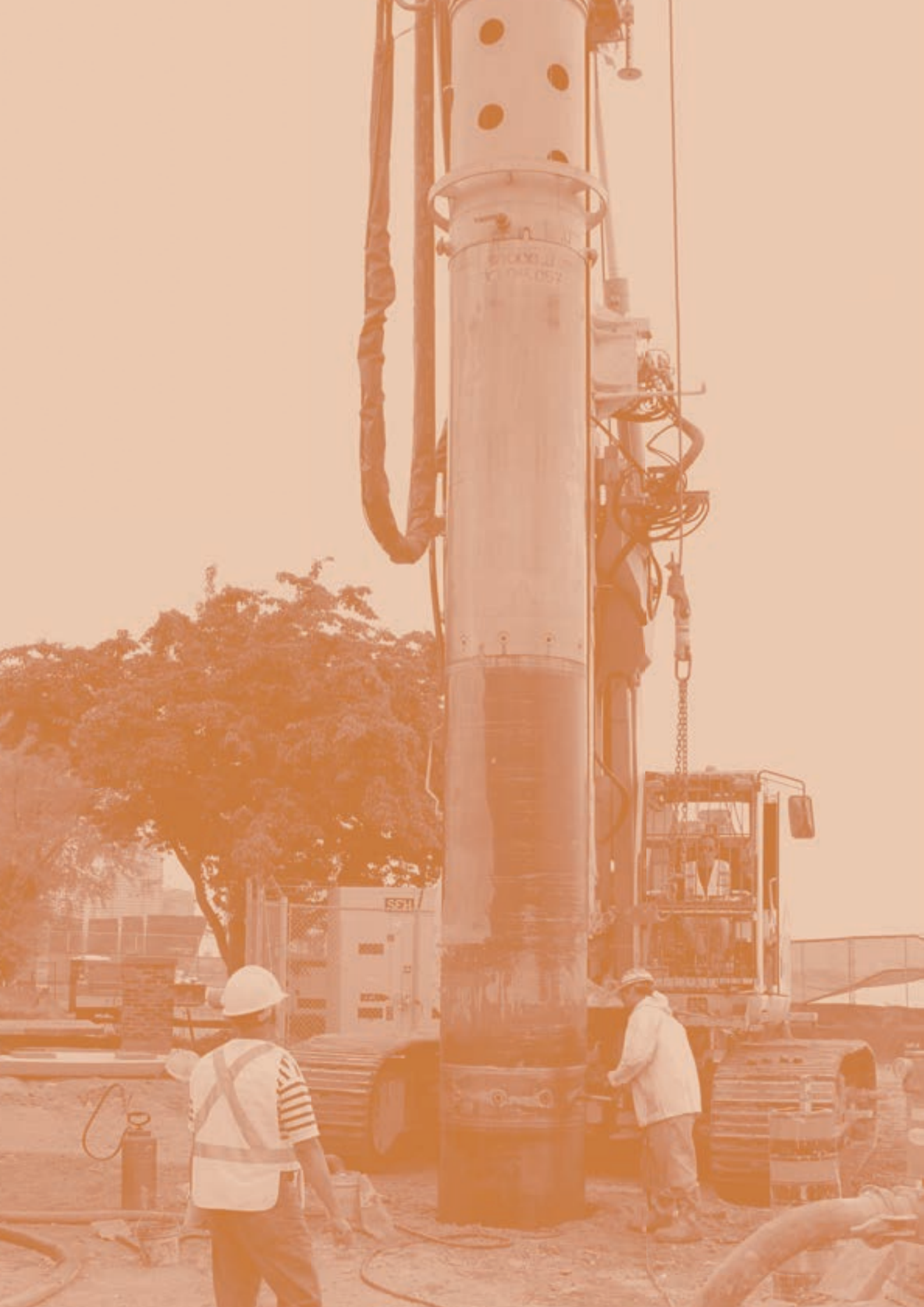
Body
Made of steel ASTM 516/70
Thickness = 45 mm
Height = 3000/3500 mm
Upper ring
Thickness = 30 mm
Height = 500 mm
Cutting edges
Made in Hardox HB 400
Thickness = 125 mm
Height = 1000 mm
Hard faced ribbings HB 600





Nominal Diameter	Chisel Diameter	Lenght	Weight
mm	mm	mm	kg
500	400	3000	1300
600	500	3000	1400
700	600	3000	1500
800	680	3000	1800
900	780	3000	2200
1000	850	3000	2500
1200	1050	3500	3000
1300	1150	3500	3200
1500	1300	3500	3500
1800	1600	3500	4500
2000	1800	3500	5000

Other dimensions are available on request



CASING

Casagrande production range includes **casing** joints and pipes for piling protection of collapsing. Casing joints are composed of one male half joint ad one female half joint applied at each end of casing pipe for easy pipe connection operations. Joints range includes two main coupling systems:

- **Conical screw** type joints for double and single wall casings
- **Labyrinth coupling** system joints for double and single wall casings.

Screw joints are made of high quality special steel and as they have been designed for heavy duty double and single wall casing coupling. Screw type casings joints are available for columns having an outer diameters from 600 mm a to 2500 mm and on request. Joints thickness may vary from 40 to 70 mm, according to required casing diameters and to the soil features.

Screw joints are especially designed to be used with casing oscillators and rotary systems. Casing joints coupling operations is by means of conical thread screws and centring keys applied for a quick coupling of the two half joints.

Labyrinth joints ar e designed for quick coupling of double and single wall casings. They are available for columns having an outer diameters from 600 mm a to 2500 mm and on request. Joints thickness may vary from 30 to 70 mm, according to required casing diameters and to the soil features

Coupling operations is made by placing coupling inserts into the recesses of female joint as inserts are especially designed to sustain the column during the extraction operations of the pipes. Joints are provided with torsion sectors on the male half joint to lock the joint coupling when torque is applied. Casing pipe columns are complete with terminal sections that are cutting rings equipped with widia inserts or other type of cutting materials.

A further option for casing operations is to drive casing by a casing driver (twister) complete with half joint to be applied directly to the rotary table of the base rig or to use the casing twister to help coupling operations of the pipe sections when a casing oscillator is operated.

OVERVIEW SCREW TYPE

Casings Column

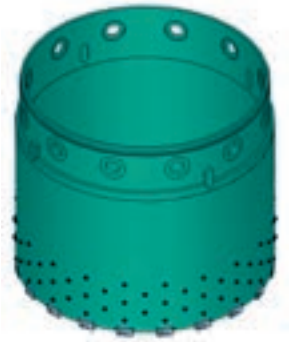
Casing Drive Adapter
with Flange for Cardan Joint

Casing Drive Adapter
with Female kelly Box

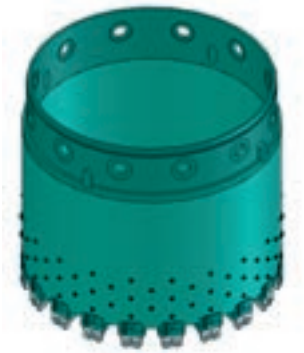
Casing
Drive Pin

Intermediate Casing

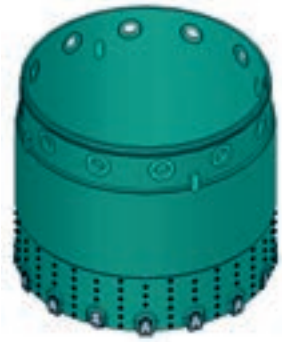
Casing Joints



Casing Shoe type A



Casing Shoe type B



Casing Shoe type C

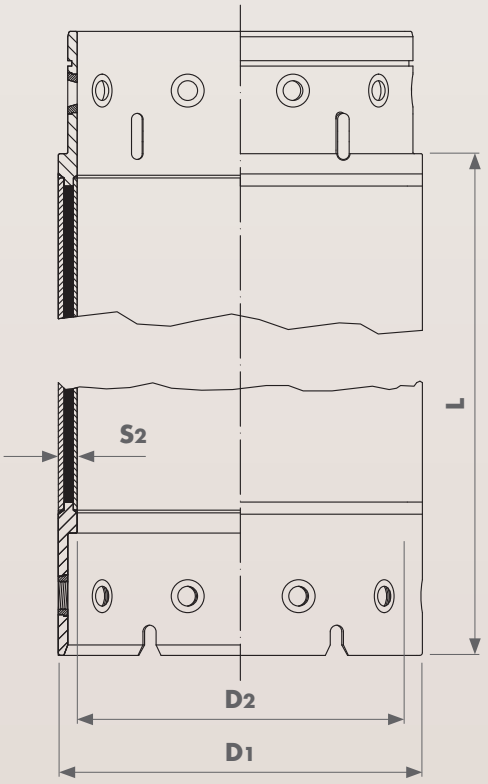
CASINGS SCREW TYPE · DOUBLE-WALL CASINGS

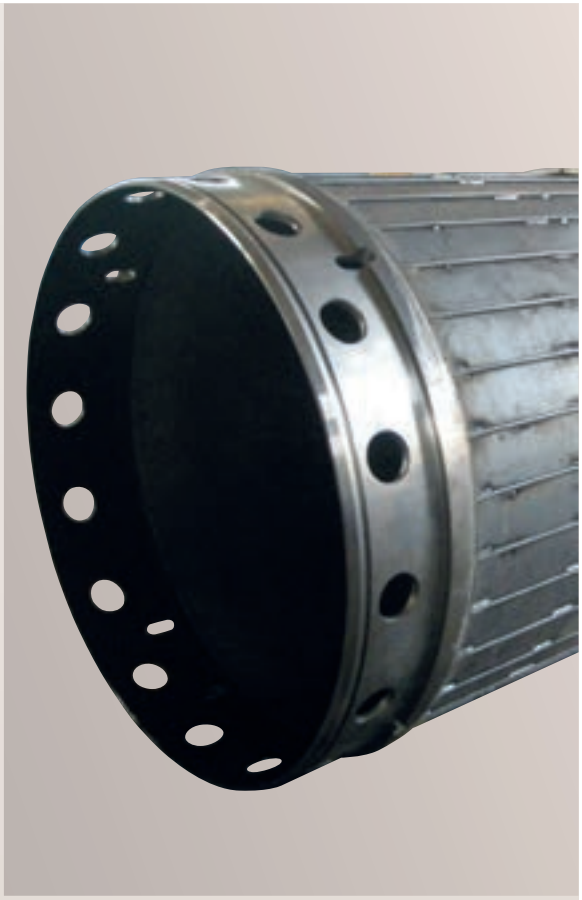
EFFECTIVE LENGHT

D1 / D2	1m	2m	3m	4m	5m	6m	C1	C2	S2 = E	Bolt
mm	kg	kg	kg	kg	kg	kg	mm	mm	mm	Num.
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	2326	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	4995	16	8	40	12
1500 / 1400	1433	2625	3817	5009	6201	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

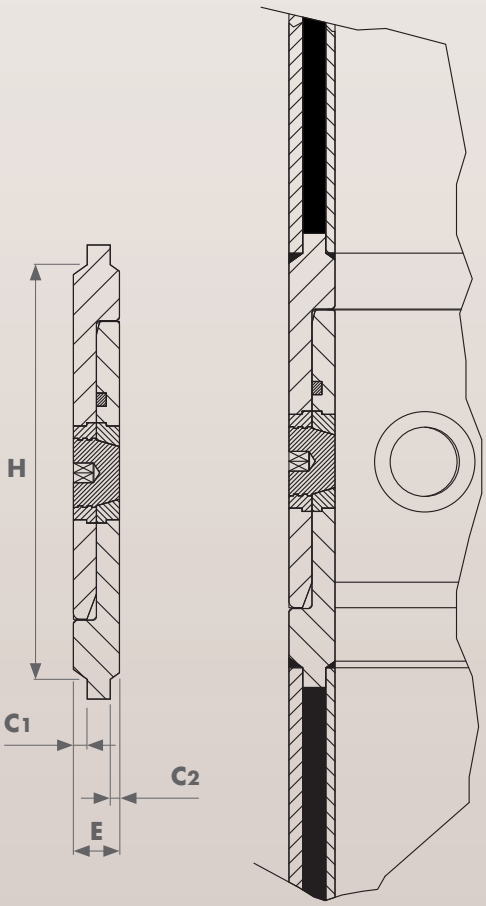
Double-Wall Casings can be used universally.
The use of oscillators requires the application of Double-Wall Casings.
Other dimensions are available on request.

DOUBLE WALL CASINGS

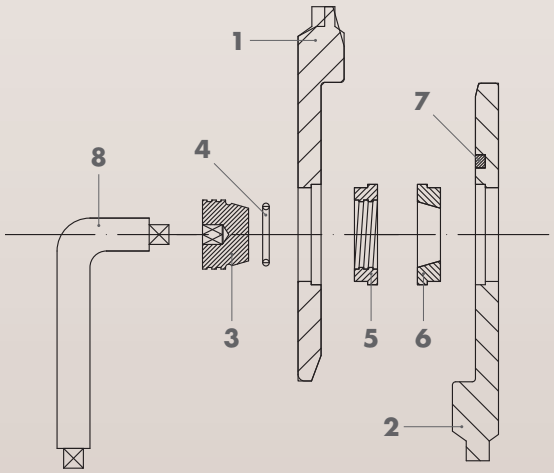




CASINGS JOINTS



DETAILS



1 Female part
2 Male part
3 Conical bolt
4 O-ring
5 Thread ring
6 Conical ring
7 Sealing
8 Wrench

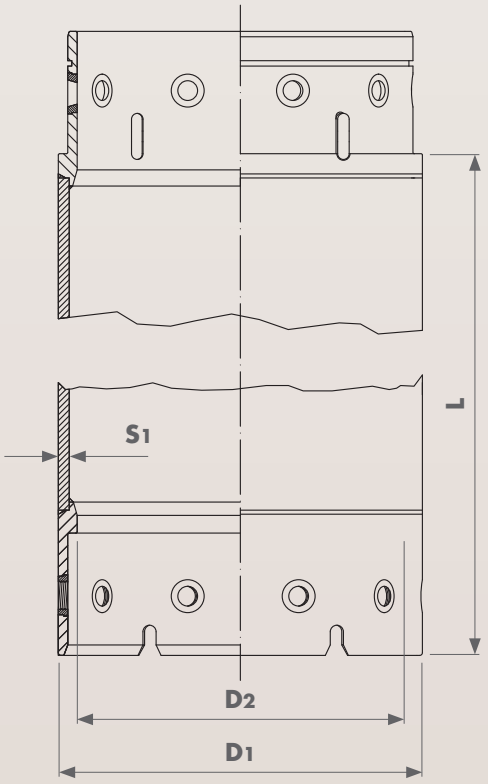
CASINGS SCREW TYPE · SINGLE-WALL CASINGS

EFFECTIVE LENGHT

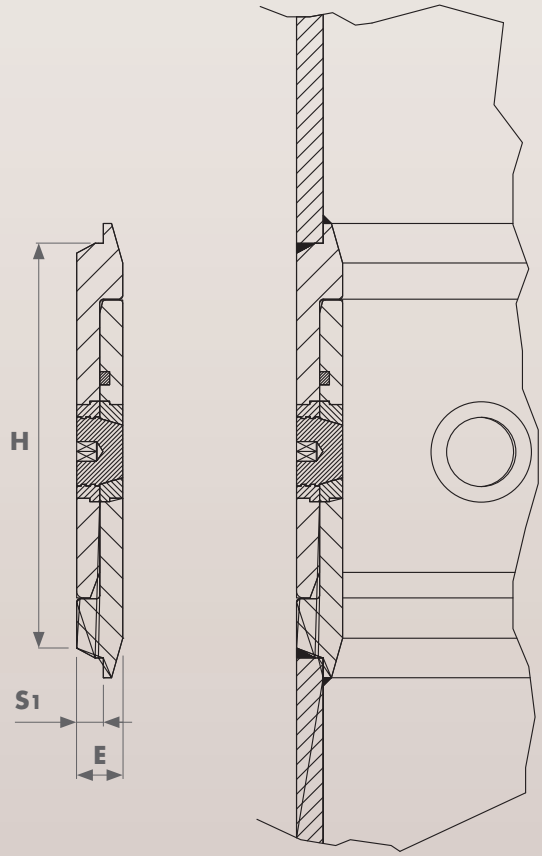
D1 / D2	1m	2m	3m	4m	5m	6m	S1	E	Bolt
mm	kg	kg	kg	kg	kg	kg	mm	mm	Num.
620 / 540	360	510	660	810	960	1110	12 / 15	40	8
750 / 670	435	615	795	975	1155	1335	12 / 15	40	10
880 / 800	500	710	930	1250	1570	1890	15	40	10
1000 / 920	570	935	1300	1685	2030	2380	15	40	10
1180 / 1100	735	1320	1900	2490	3075	3660	15 / 20	40	12
1300 / 1220	845	1475	2105	2735	3365	3995	15 / 20	40	12
1500 / 1400	1310	2220	3130	4040	4950	5860	15 / 25	50	12
1800 / 1700	1580	2675	3770	4865	5960	7055	20 / 25	50	16
2000 / 1880	2140	3355	4570	5785	7000	8515	25	60	12
2200 / 2080	2350	3690	5030	6370	7710	9050	25	60	12
2500 / 2380	2575	4100	5625	7150	8675	10200	25	60	16

Single-wall casings can be used for reasons of weight reduction.
Other dimensions are available on request.

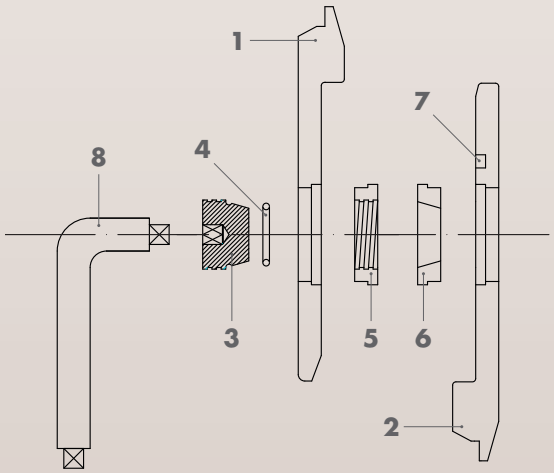
SINGLE WALL CASINGS



CASINGS JOINTS



DETAILS



1 Female part
2 Male part
3 Conical bolt
4 O-ring
5 Thread ring
6 Conical ring
7 Sealing
8 Wrench

CASINGS SCREW TYPE

CASING SHOES

	LONG VERSION (Lenght = 2 m)				SHORT VERSION (Lenght = 1 m)		
D1 / D2	H1	S3 / S4	Weight	Teeth	H3	a	Weight
mm	mm	mm	kg	Nos.	mm	mm	kg
620 / 540	2232	40 / 35	1300	16	1232	948	716
750 / 670	2232	40 / 35	1594	16	1232	948	880
880 / 800	2232	40 / 35	1882	18	1232	948	1037
1000 / 920	2232	40 / 35	2150	18	1232	948	1184
1180 / 1100	2232	40 / 35	2550	20	1232	948	1405
1200 / 1120	2232	40 / 35	2596	20	1232	948	1430
1300 / 1220	2232	40 / 35	2820	24	1232	948	1552
1500 / 1400	2352	50 / 45	4312	30	1352	933	2490
1800 / 1700	2352	50 / 45	5203	36	1352	933	3005
2000 / 1880	2400	60 / 55	7024	36	1400	900	4100
2200 / 2080	2400	60 / 55	7736	40	1400	900	4510
2500 / 2380	2400	60 / 55	8728	46	1400	900	5050

Other dimensions are available on request.

CUTTING RINGS

D1 / D2	Cutting Ring Lenght	S4	Weight	Teeth
mm	mm	mm	kg	Nos.
620 / 540	300	35	160	16
750 / 670	300	35	200	16
880 / 800	300	35	230	18
1000 / 920	300	35	260	18
1180 / 1100	300	35	310	20
1200 / 1220	300	35	313	20
1300 / 1220	300	35	340	24
1500 / 1400	300	45	513	30
1800 / 1700	300	45	620	36
2000 / 1880	300	55	830	36
2200 / 2080	300	55	910	40
2500 / 2380	300	55	1050	46

Other dimensions are available on request.

TYPE A

Optimum shape for milling of soil.
Round milling front with hard metal insert allows variable tooth inclination.
Hard metal tips on the outside of the inclined shoulder eases extraction of casing.

Suitable for:
heavy oscillator work in hard soil, gravel, rock, concrete in secant pile wall.

TYPE B

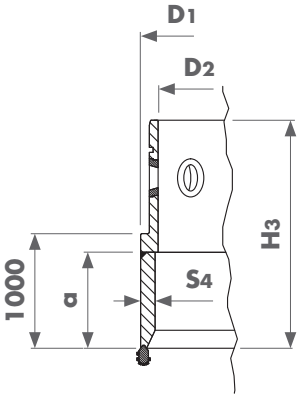
Optimum shape for cutting and reaming.
Hard metal tips on outside inclined shoulder eases extraction of casing.
Aggressive cutting behaviour.

Suitable for:
mainly for rotary drilling in sand, cohesive soil, marl, soft rock like claystone.

TYPE C

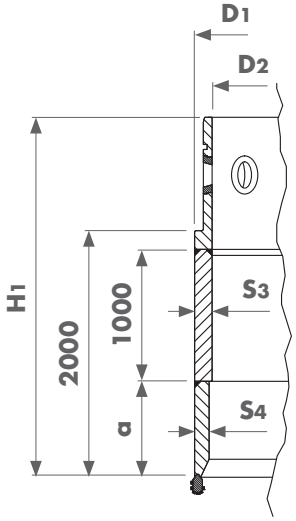
Optimum shape for milling, cutting and reaming of soil.
The shape of the teeth has been optimised to produce a single reversible tooth.
Cutting properties, material flow at the tooth and wear resistance are excellent.
Very aggressive cutting behaviour.

Suitable for:
formation of rock sockets and the construction of bored pile walls



SHORT VERSION

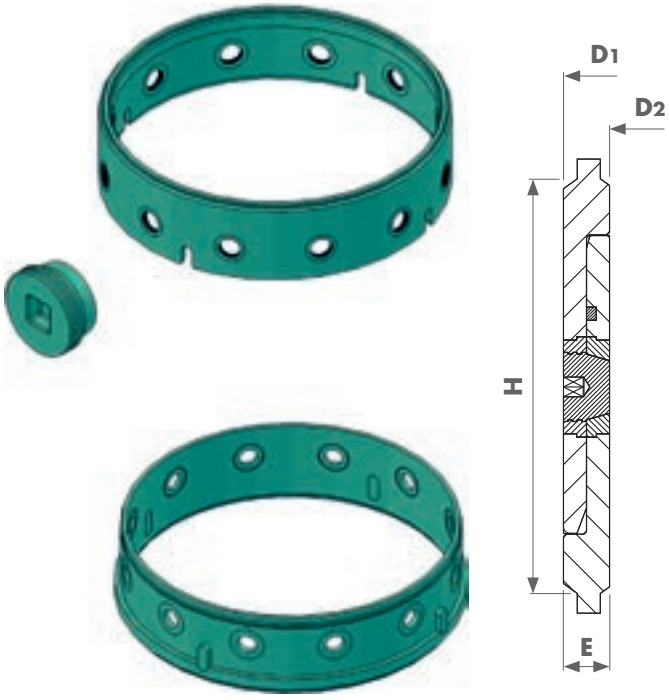
Cutting ring can be equipped with A, B or C type teeth (other teeth type on request).
Male joint and cutting ring are machine faced.
Cutting ring welded directly to male joint.



LONG VERSION

Cutting ring can be equipped with A, B or C type teeth (other teeth type on request).
Male joint, wear ring and cutting ring are machine faced.
Centering groove on wear ring and tack welding of cutting ring to wear ring allow easy replacement of cutting ring on site.

CASING JOINTS

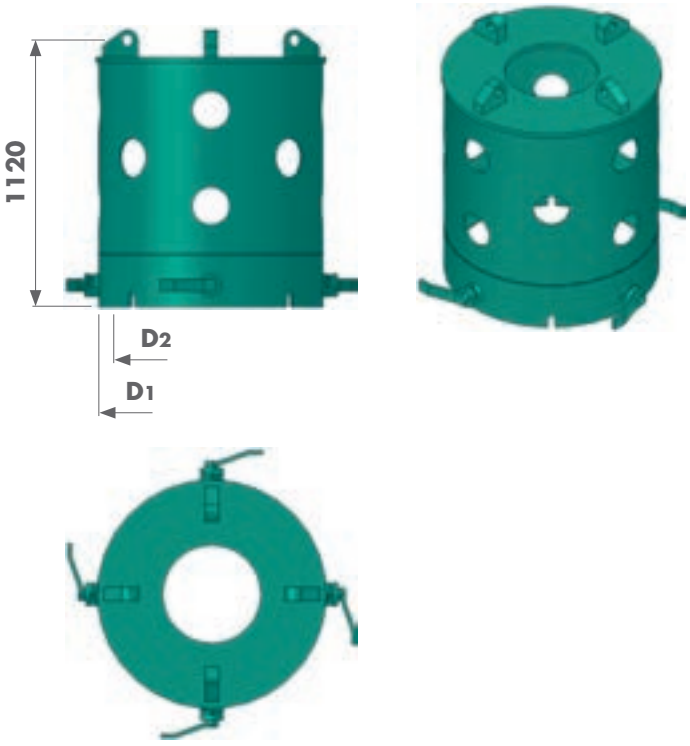


CASING JOINT DIMENSIONS

D1 / D2	H	Weight
mm	mm	kg
620 / 540	340	179
750 / 670	340	218
880 / 800	340	261
1000 / 920	340	300
1180 / 1100	340	355
1200 / 1220	340	375
1300 / 1220	340	393
1500 / 1400	490	827
1800 / 1700	490	998
2000 / 1880	560	1520
2200 / 2080	560	1670
2500 / 2380	560	1800

Other dimensions are available on request.

Twister



TWISTER DIMENSIONS

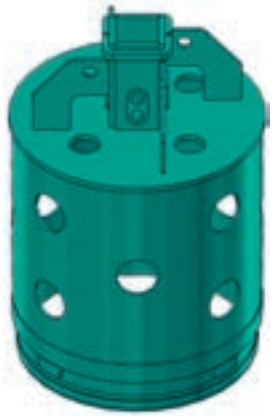
D1 / D2	E	Weight
	mm	kg
620 / 540	40	179
750 / 670	40	218
880 / 800	40	261
1000 / 920	40	300
1180 / 1100	40	355
1200 / 1220	40	375
1300 / 1220	40	393
1500 / 1400	50	827
1800 / 1700	50	998
2000 / 1880	60	1520
2200 / 2080	60	1670
2500 / 2380	60	1800

Other dimensions are available on request.

CASINGS LABYRINTH TYPE

OVERVIEW LABYRINTH TYPE

Casing Drive Adapter
with Flange for Cardan Joint



Casing Drive Adapter
with Female kelly Box

Casings Column

Intermediate Casing

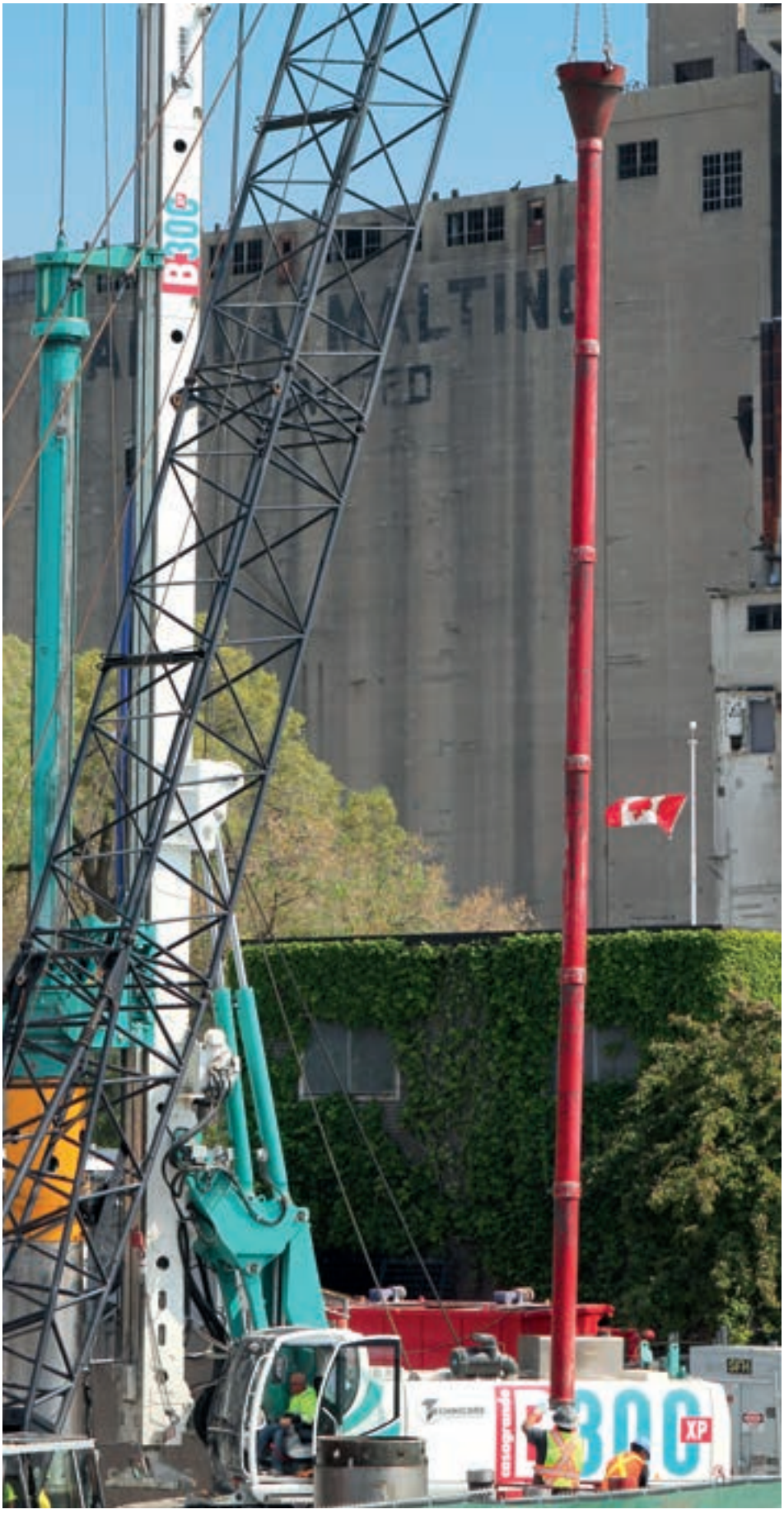
Casing Joints

Casing Shoe type A

Casing Shoe type B

Casing Shoe type C

TREMIE PIPES



Tremie pipes are normally used to pour concrete into a pile is drilled, 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.

Casagrande tremie pipes are made of quality drawn steel plates in order to guarantee high resistance elements.

Pipes sections can be connected by two kinds of coupling systems: threaded joints and wire cable joints.

While threaded tremie pipe are equipped with male/female joints with thread, the wire cable system is designed for quick assembly /dismounting of the various pipe sections during the concreting operations.

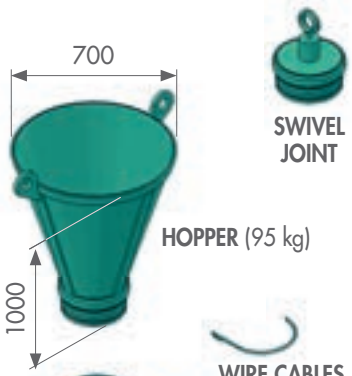
Using wire cables joints water and mud penetration is prevented by OR ring seals applied in between male and female joints.

Tremie pipes assembly is provided with set of accessories such as:

- **Funnel:** to pour concrete through the tremie pipe;
- **Lifting swivel:** to help the lifting and lowering operations;
- **Chain spanner:** for tightening and unscrewing of threaded joints ;
- **Fork spanner** for wire release system;
- **Anti-slippery platform** equipped with a pipe clamping system to prevent pipes from falling into the holes;
- **Container rack:** to stock pipes and to make easy the moving from one jobsite to another.

TREMIE PIPES

WITH WIRE CABLES



SWIVEL JOINT

HOPPER (95 kg)

WIRE CABLES

CABLE RELEASE FORK

DOUBLE O - RING

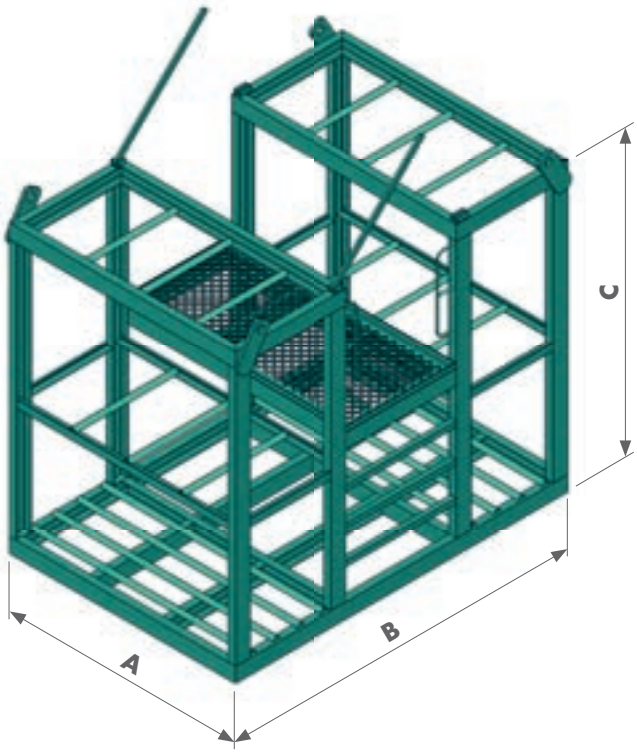
TREMIE PIPE WITH WIRE CABLES

MALE JOINT

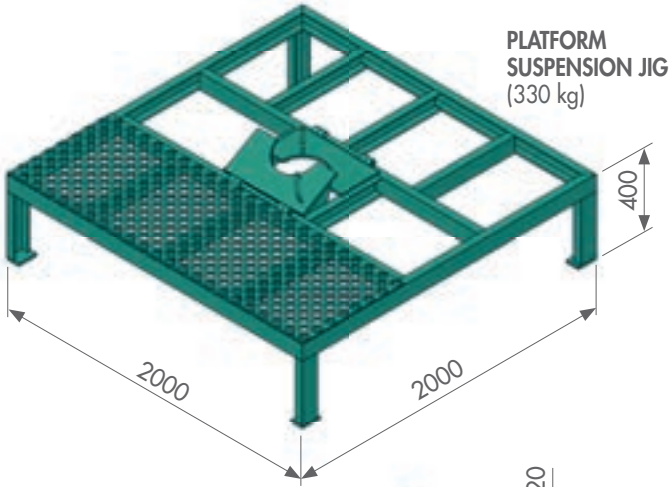
FEMALE JOINT

PIPE SHOE

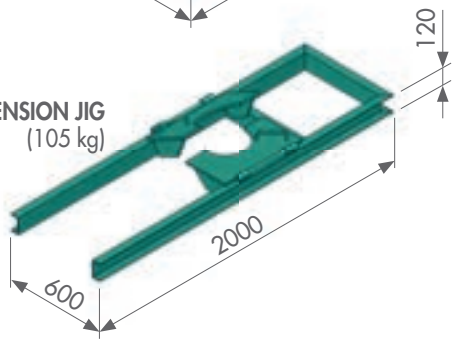
RACK



	A	B	C	WEIGHT
	mm	mm	mm	kg
Rack 12	1160	2265	2100	530
Rack 16	1530	2265	2100	620
Rack 20	1900	2265	2100	660
Rack 24	1530	2870	2100	700



PLATFORM SUSPENSION JIG (330 kg)



SUSPENSION JIG (105 kg)

THREADED

SWIVEL JOINT

HOPPER

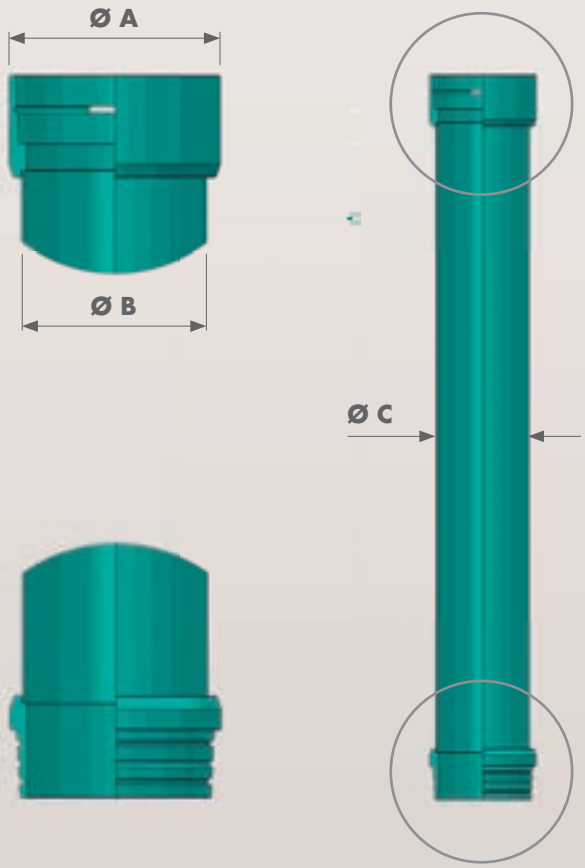
THREADED TREMIE PIPE

MALE JOINT

CHAIN KEY (7 kg)

PIPE SHOE

TREMIE PIPES WITH WIRE CABLES

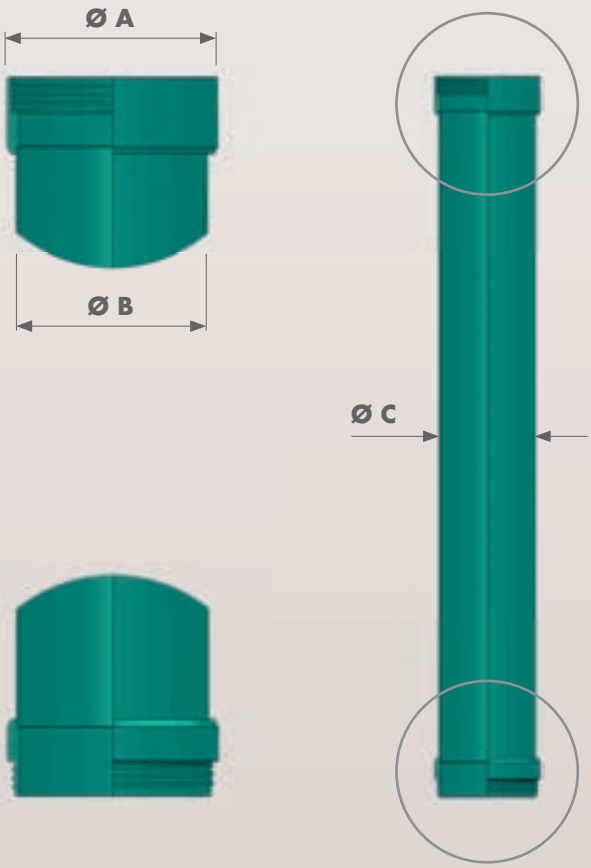


Ø A Tremie Joint	Ø B Concrete Passage	Ø C Tremie Pipe
mm	mm	mm
254	219	204
298.5	250	242.5
310	273	260

Other dimensions are available on request

Ø A	Weight for L = 1 m	Weight for additional meter
mm	kg	kg
254	40	22
298.5	48	25
310	65	35

THREADED TREMIE PIPES



Ø A Tremie Joinbt	Ø B Concrete Passage	Ø C Tremie Pipe
mm	mm	mm
219	193,7	187
244.5	219	212,5
273	250	244.6

Other dimensions are available on request

Ø A	Weight for L = 1 m	Weight for additional meter
mm	kg	kg
219	32	17
244.5	40	22
273	55	35


B30C
XP

CFA (CONTINUOUS FLIGHT AUGERS)

CFA piles are a type of drilled foundation in which the pile is drilled to the final depth in one continuous process using a continuous flight auger.

Concrete is then pumped under pressure down the hollow stem of the auger to the bottom of the bore.

Once pumping starts, the auger is progressively withdrawn bringing soils with it to the surface.

When the auger and its load of soil are finally removed, reinforcement to meet the design requirement is placed in the concrete pile.

Continuous Flight Auger CFA piles are installed without significant vibration or excessive noise being produced.

Casagrande produces two different types of CFA couplings, 160 and 200 mm designed according to the rotary torque, to the soil conditions and to the designed drilling depth.

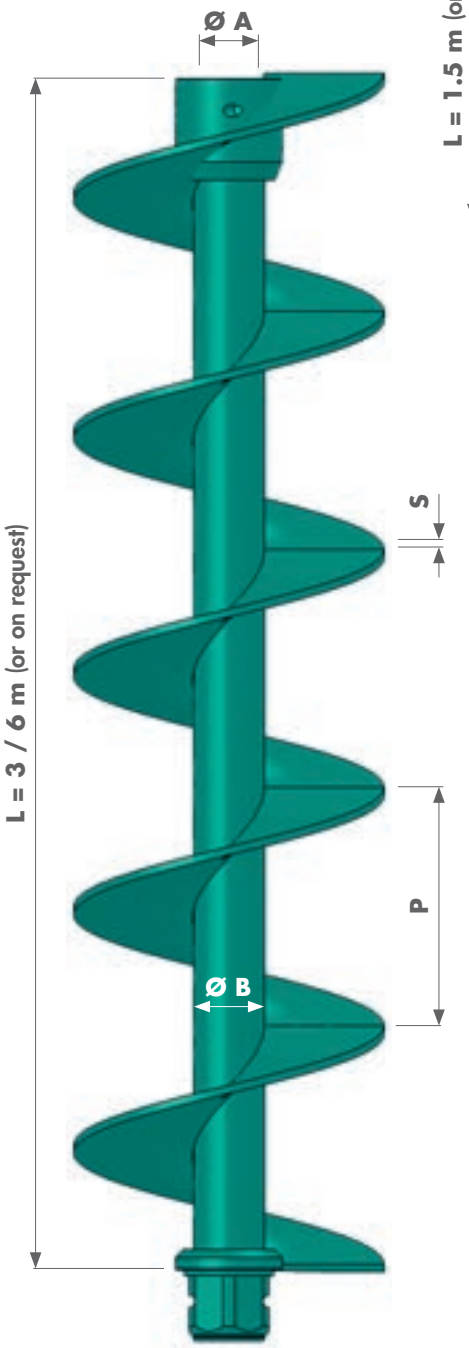
CFA strings are provided with inner tube diameter 5" and 6" to fit concrete piping already installed on the base rigs. Of course others dimensions are available on request

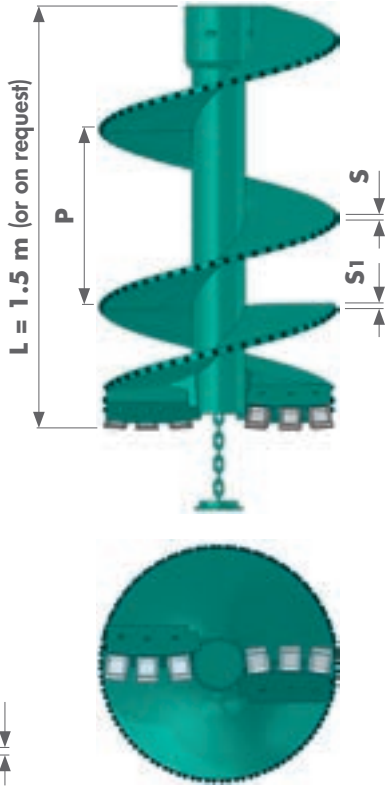
Coupling of CFA sections is by high resistance hexagonal, fully machined M/F joints, made of special case-hardened steel.

CFA column can be equipped with double start digging head for rock or for soil, supplied with interchangeable round shank chisels or teeth. Flights hedges are Tung Studs HB 900 or HB 600 hard face welded.

Bottom concrete exit is with steel plug and recover y chain. Side exit can be supplied on request

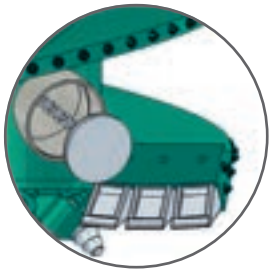
CFA (CONTINUOUS FLIGHT AUGERS)





Soil Head
Equipped with Teeth Esco 18TL/25T, Ultralock or Betek (recommended)

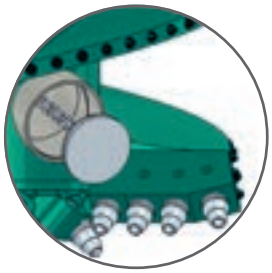
Rock Head
Equipped with Betek Round Shank Chisel OD 30/38 mm



Concrete outlet on side

Conical Rock Head
Equipped with Betek Round Shank Chisel OD 25.4 mm (1")

Rock Head
Equipped with Betek Round Shank Chisel OD 25.4 mm (1")



Concrete outlet on side

HEX 160 HEXAGONAL JOINT
SUITABLE FOR TORQUE UP TO 160 kNm

Technical details

Minimum diameter	350 mm
Maximum diameter	1000 mm
Hexagonal joint	160 mm
Concrete passage **Ø A**	125 mm (5")
Central pipe **Ø B**	177.8 mm
Maximum torque	160 kNm

Ø Borehole	S	P	S1
mm	mm	mm	mm
350	15	350	25
400	15	350	25
500	15	400	25
600	15	500	25
700	20	600	30
800	20	600	30
900	20	600	30
1000	20	600	30

Other dimensions are available on request

HEX 200 HEXAGONAL JOINT
SUITABLE FOR TORQUE HIGHER THAN 160 kNm

Technical details

Minimum diameter	400 mm
Maximum diameter	1200 mm
Hexagonal joint	200 mm
Concrete passage **Ø A**	143 mm (5" 1/2)
Central pipe **Ø B**	203 mm
Maximum torque	160 kNm up to a 350 kNm

Ø Borehole	S	P	S1
mm	mm	mm	mm
400	20	350	30
500	20	400	30
600	20	500	30
700	20	600	30
800	20	600	30
900	20	600	30
1000	20	600	30
1100	25	600	40
1200	25	600	40

Other dimensions are available on request

Ø	Weight L = 3 m	Weight additional meter	Weight Soil Head	Weight Rock Head
mm	kg	kg	kg	kg
350	465	145	270	270
400	475	145	280	280
500	540	165	325	325
600	580	180	370	370
700	645	200	430	430
800	690	215	475	475
900	795	250	560	500
1000	920	270	660	600

Ø	Weight L = 3 m	Weight additional meter	Weight Soil Head	Weight Rock Head
mm	kg	kg	kg	kg
400	780	235	470	470
500	815	250	530	530
600	850	265	580	580
700	920	290	650	650
800	965	300	710	710
900	1070	340	810	810
1000	1180	375	935	935
1100	1490	480	1140	1140
1200	1650	535	1300	1300


FORASOL

FDP (FULL DISPLACEMENT PILES)

Soil Displacement piles are bored cast in situ concrete piles constructed by advancing a **displacement boring** tool into the ground with a rotary drilling rig using both torque and crowed force.

The technique is ideally suited for a wide spectrum of soil condition ranging from sandy gravel, sand, silt and clay to soft organic soils, so long as the soil is displaceable.

The particular advantage of Full Displacement Pile is the relatively simple technology where no temporary casings are used.

While the full displacement auger is screwed into the ground with the lower opening plugged by a bottom plate the soil gets completely displaced and thus compacted.

The boreholes stays dry without any excavation is taking place. This silent and vibration on free drilling method is highly suitable for jobs where the existing ground water table cannot be disturbed or if the soil is contaminated and an exchange of the contaminated soil is excluded, as well as on jobs, where adjacent buildings need to be protected.

The borehole wall is supported at all times and the risk of collapsing does not exist.

During the concreting process the full displacement auger continues to turn clockwise while being extracted, so that the tangential reamers creating spiral-like grooves in the borehole wall.

These grooves are filled by the static pressurized concrete and thus the load-carrying capacity of the pile increases considerably.

With FDP technique is possible to have piles in diameters between 250 and 1000 mm.

Under normal working condition Full Displacement Pile can be produced to an inclination ratio of up to 4:1. The use of Casagrande joints allows to transfer torque moments up to 600 kNm.

The Casagrande Full Displacement Augers guarantee a cost efficient, environmental-friendly and safe production of cast-in-situ concrete piles with a vibration-free drilling method.

FDP • STANDARD METHOD

Compaction during extraction
One counter rotating flight compacts any loose soil areas during tool extraction

Displacement
This part has a cylindrical shape in order to stabilize the displacement material

Compaction
Conical passage to displacement diameter generates horizontal forces in the soil which is taken up by the flights

Drilling
The soil is loosened by the starter auger and it is taken up by the flights

FDP Standard: a hollow steam auger displaces the material of the pile diameter laterally into the adjacent ground, after reaching final depth, the auger is retracted (it is rotated in drilling direction) whilst simultaneously concreting through the hollow stem and subsequently the reinforcement cage is installed using a vibrodriver.

FDP tool can be manufactured as one piece or in two parts so that with an extended starter auger is possible to drill through thinner non displaceable formations.

Main technical details are indicated below

- Hollow Stem with single or double wall
- Pipe steel quality ASTM 516/70
- Stem outer diameter and its thickness on request
- Stem inner diameter and its thickness on request
- Couplings size on request

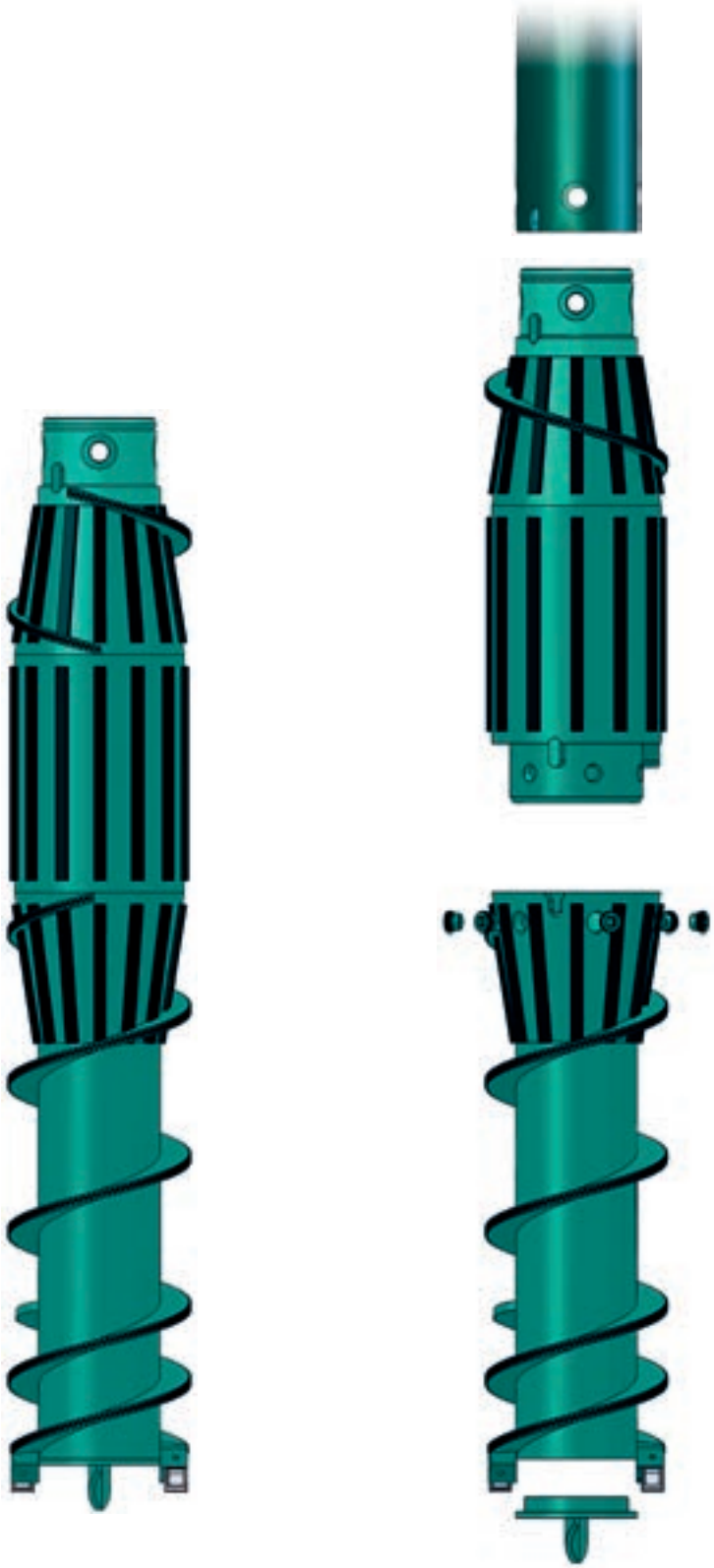
- FDP with Male or Female coupling on request
- One auger flight 360° anticlockwise
- Displacement body length on request
- Displacement diameter on request
- Flights thickness and pitch on request

- Tung Studs HB 900 on the flights
- Antiwer bars in Ni-Cr-Mo
- Blades in special steel
- Double cutting head
- Teeth or Round Shank Chisel on request

- Pilot bit on request
- Concrete opening system with chain, mechanical system or lost plate
- Different usable lengths are available on request

Drilling Diameter (mm)	350	400	450	500	550	600

FDP • LOST BIT METHOD



FDP Lost Bit: It differs from the standard technique by a detachable (sacrificial) bottom drill bit, a hollow drill stem with a larger internal diameter and a concrete hopper that is mounted at the top of the hollow stem.

Drilling of the displacement tool into the ground by rotating and pushing of the tool.

The soil is loosened by the starter auger and then pushed laterally into the surrounding soil by the displacement body.

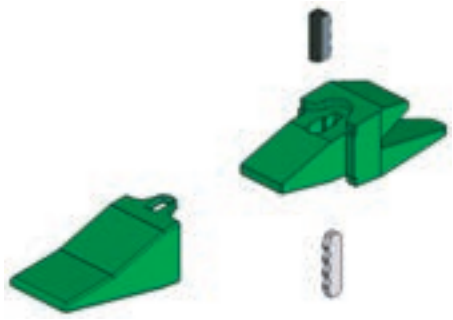
On reaching the final depth the reinforcement cage is inserted into the hollow drill stem so the bottom drill bit is lost.

During extraction of the displacement tool, concrete is simultaneously discharged by the concrete hopper and placed unpressurised in the pile trough the hollow drill stem.

Drilling Diameter (mm)	450	500	550	600	650	700

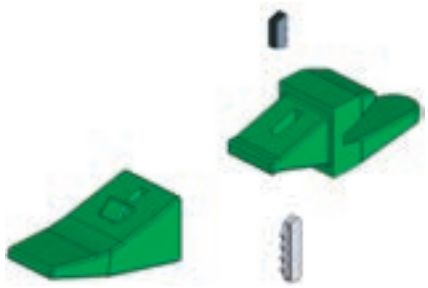
TOOLS SPARE PARTS

TOOTH 18 TL



DESCRIPTION
TOOTH 18 TL
HOLDER
LOCKING PIN
RUBBERBLOCK

TOOTH 25 T

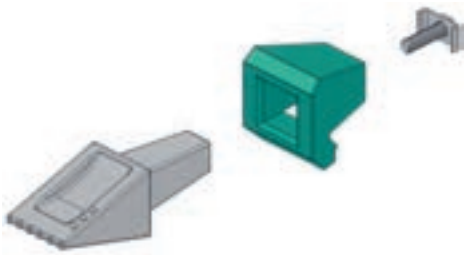


DESCRIPTION
TOOTH 25 TL
HOLDER
LOCKING PIN
RUBBERBLOCK

TOOTH U 20 S

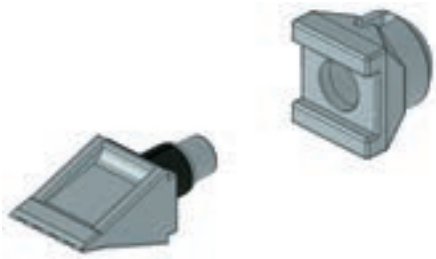
DESCRIPTION
TOOTH U20S
HOLDER

TOOTH BETEK G



DESCRIPTION
TOOTH BETEK G
HOLDER
SAFETY BOW
SCREW

TOOTH BETEK P



DESCRIPTION
TOOTH BETEK P
HOLDER

ROUND SHANK CHISEL - 1"

DESCRIPTION
BETEK 1"
HOLDER

ROUND SHANK CHISEL - 30/38 mm

DESCRIPTION
BETEK 30/38
HOLDER

ROUND SHANK CHISEL - 30/38 mm

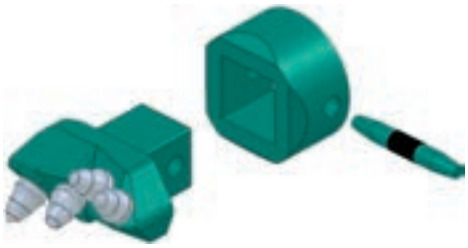
DESCRIPTION
BETEK 30/38
HOLDER P

TOOLS SPARE PARTS

ROLLER BIT

DESCRIPTION
ROLLER BIT

PILOT BIT



DESCRIPTION
ROCK PILOT BIT
PILOT BIT
LOCKING PIN

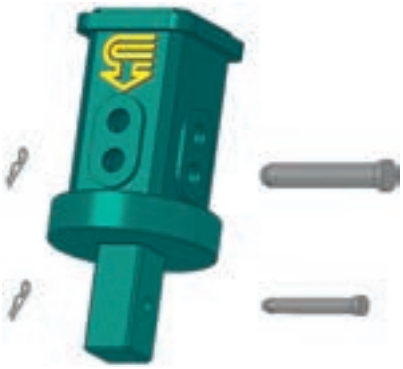
KELLY BOX

DESCRIPTION
KELLY BOX 130x130 mm
LOCKING PIN
KELLY PIN

KELLY BOX

DESCRIPTION
KELLY BOX 200x200 mm
LOCKING PIN
KELLY PIN

KELLY BOX ADAPTORS



DESCRIPTION
ADAPTOR F200-M130 mm
LOCKING PINS
KELLY PINS

KELLY BOX ADAPTORS

DESCRIPTION
ADAPTOR F130-M200 mm
LOCKING PINS
KELLY PINS

CASINGS SPARE PARTS

CONICAL RING

DESCRIPTION
CONICAL RING 40
CONICAL RING 50
CONICAL RING 60

THREAD RING

DESCRIPTION
THREAD RING 40
THREAD RING 50
THREAD RING 60

SCREW

DESCRIPTION
SCREW 40
SCREW 50
SCREW 60

KEY

DESCRIPTION
KEY 40
KEY 50
KEY 60

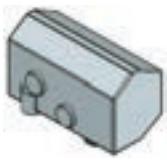
WRENCH

DESCRIPTION
WRENCH 40
WRENCH 50
WRENCH 60

CASING DRIVE PIN

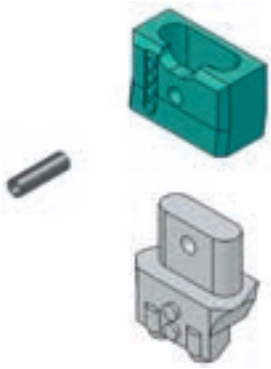
DESCRIPTION
CASING DRIVE PIN 40
CASING DRIVE PIN 50
CASING DRIVE PIN 60

WELDING BAR - TYPE A



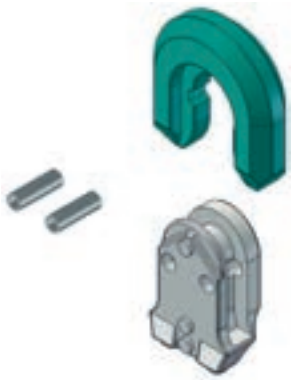
DESCRIPTION
BAR

QUICK CHANGE BAR - TYPE B



DESCRIPTION
BAR
HOLDER
LOCKING PIN

QUICK CHANGE BAR - TYPE C



DESCRIPTION
BAR
HOLDER
LOCKING PIN

CFA (CONTINUOUS FLIGHT AUGERS) SPARE PARTS

MALE HEX 160 mm

DESCRIPTION
MALE HEX JOINT 160 mm
O-RING
PINS

FEMALE HEX 160 mm

DESCRIPTION
FEMALE HEX JOINT 160 mm
O-RING
PINS

HEX ADAPTOR 160-200 mm

DESCRIPTION
HEX ADAPTOR 160-200 mm FEMALE 160 mm - MALE 200 mm
O-RING
PINS

MALE HEX 200 mm

DESCRIPTION
MALE HEX JOINT 200 mm
O-RING
PINS

FEMALE HEX 200 mm

DESCRIPTION
FEMALE HEX JOINT 200 mm
O-RING
PINS

HEX ADAPTOR 200-160 mm

DESCRIPTION
HEX ADAPTOR 200-160 mm FEMALE 200 mm - MALE 160 mm
O-RING
PINS

All data contained in this brochure are indicative and does not take power losses into account. All data can be changed without notice.
Tutti i dati riportati su questo catalogo sono indicativi e non considerano perdite di carico. Tali dati possono variare senza preavviso.

01/2013

casagrande®

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