
casagrande
FOUNDATION
DRILLING
TOOLS

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

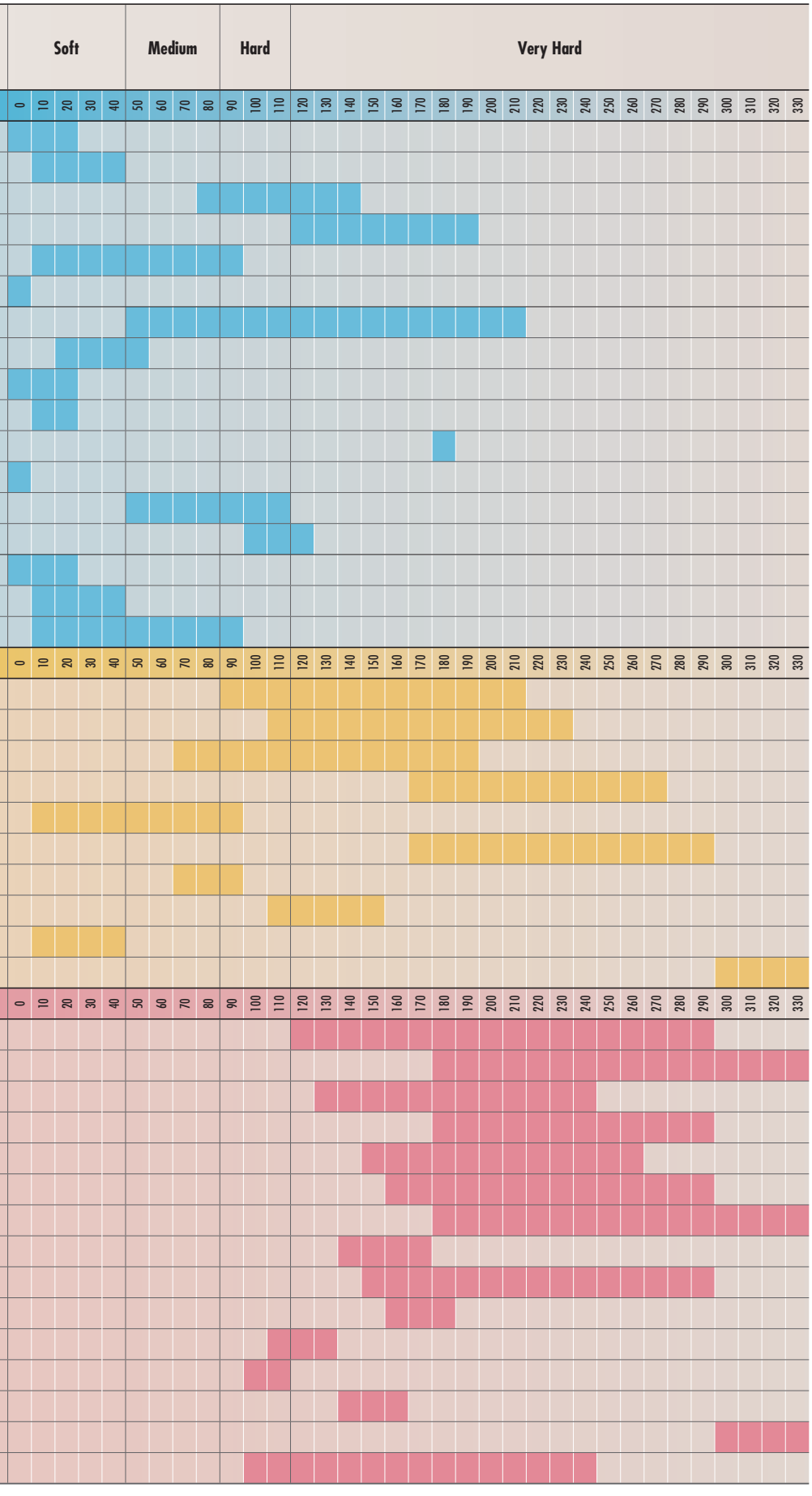
| CORE BARREL | | SPECIAL TOOLS | | |
|---|---|---|---|---|
| ROCK | | SOIL | ROCK | **GROUND** |
| CORE BARREL | CORE BARREL – BRICK | CLEANING BUCKET<br>BELLING BUCKET | CORE BARREL - Cross<br>CORE BARREL - Roller Bits<br>CHISEL | **DESIGN** |
| BETEK Round Shank Chisel<br>- 25,4 mm (1")<br>- 30/38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

# SOIL AND ROCK HARDNESS

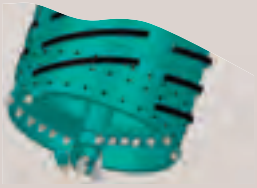
| | SEDIMENTARY ROCKS | Compressive Strength (Mpa) min. | Compressive Strength (Mpa) max. |
|---|---|---|---|
| Clastics | Gravel, Loam, Silica, Clay, Sand | < 5 | 30 |
| Clastics | Breccia | 10 | 45 |
| Clastics | Conglomerate | 80 | 150 |
| Clastics | Sandstone | 120 | 200 |
| Clastics | Argillite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

| | METAMORPHIC ROCKS | Compressive Strength (Mpa) min. | Compressive Strength (Mpa) 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 |
| | Paragneiss, Ortogneiss | 110 | 160 |
| | Chlorite schist | 10 | 50 |
| | Serpentinite | | > 300 |

| | IGNEOUS ROCKS | Compressive Strength (Mpa) min. | Compressive Strength (Mpa) 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.

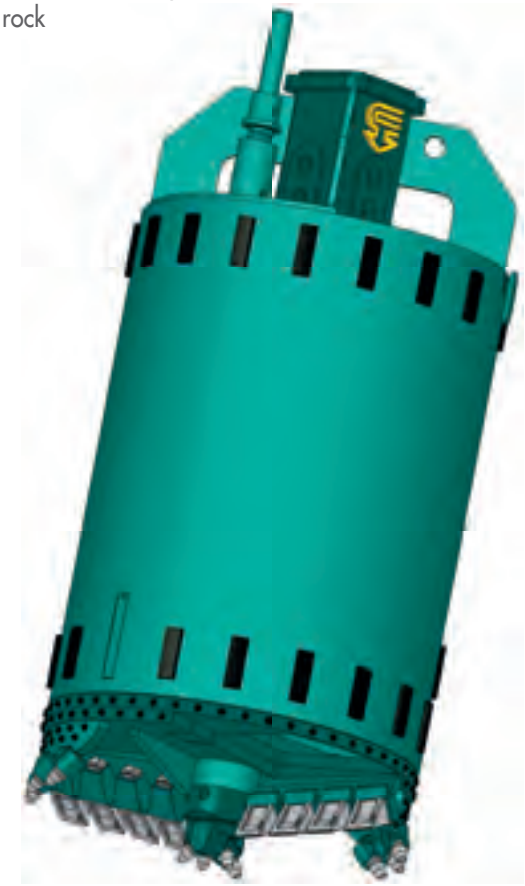
The weights are approximate values.

# SOIL BUCKET

## GOLD

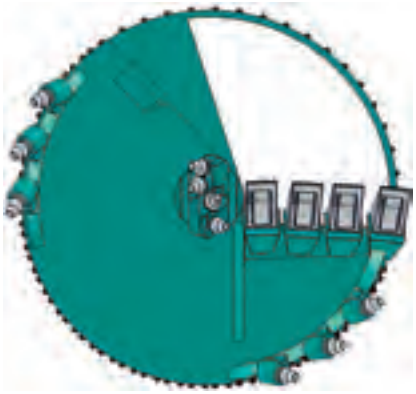
### MAIN USE

- 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



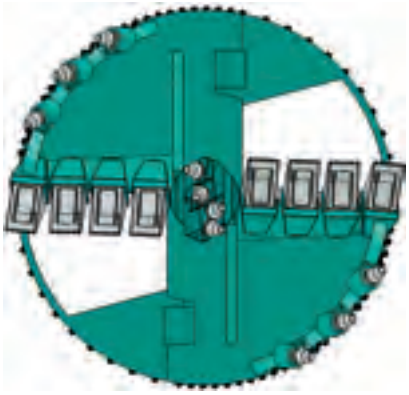
### TECHNICAL SPECIFICATIONS

| |
|---|
| **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** |



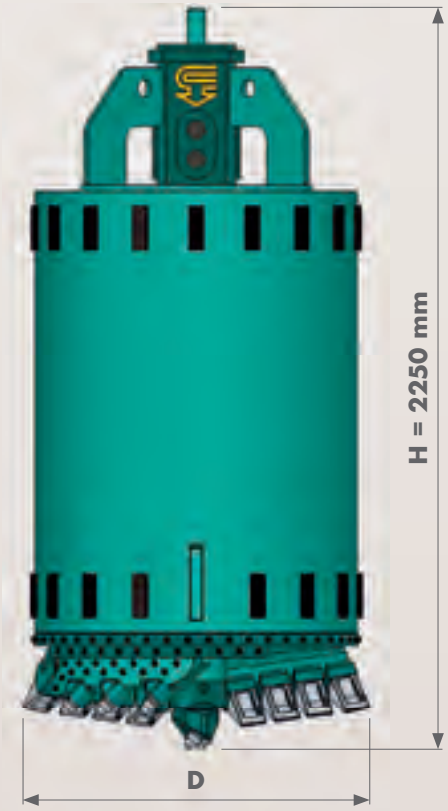
### SINGLE OPENING

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

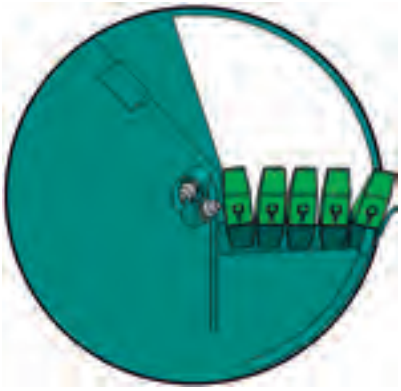
## SILVER

### 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

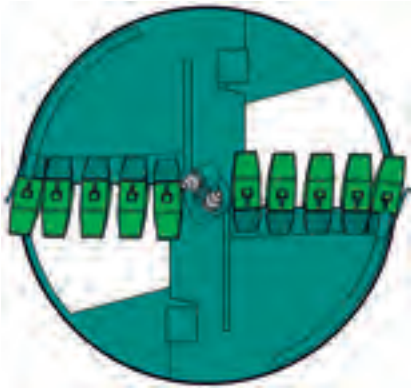
### TECHNICAL SPECIFICATIONS

| |
|---|
| **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** |



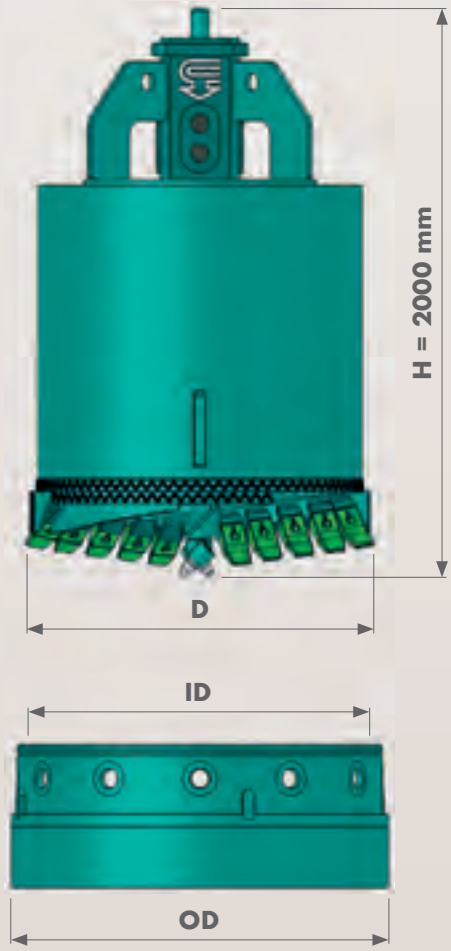
### SINGLE OPENING

Up to pile diameter Ø 1000 mm



### DOUBLE OPENING

Over pile diameter Ø 1000 mm




| OD<br>Casing Outer Diameter | ID<br>Casing Inner Diameter | D<br>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

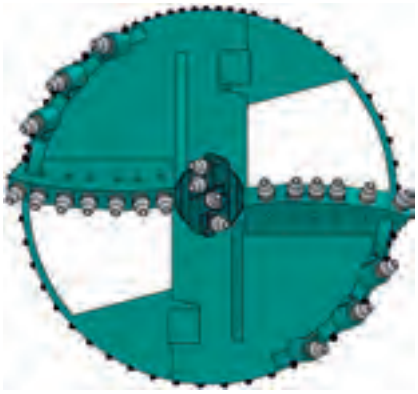
- Suitable for drilling in stratification with hardness range of 12.5 – 50 MPa
- Medium and hard Rock
- Very dense sand and gravel

### 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** |

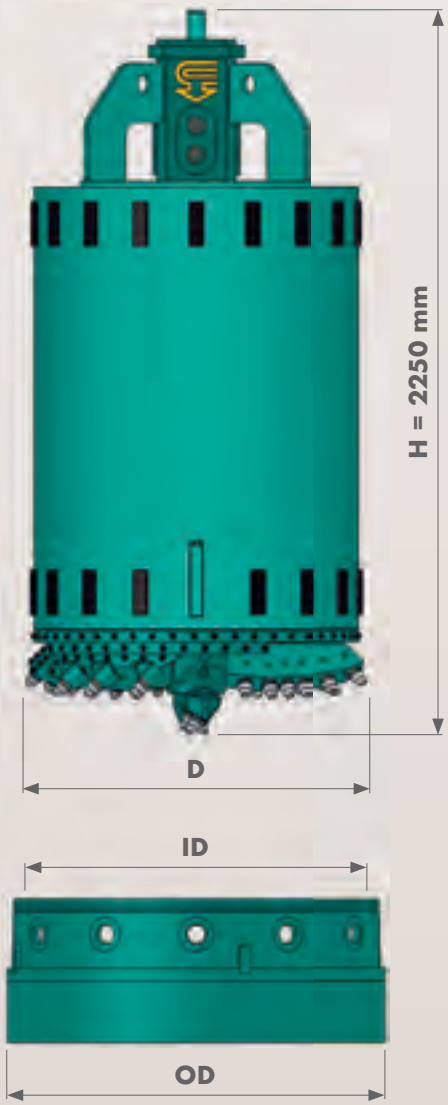
### SINGLE OPENING

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

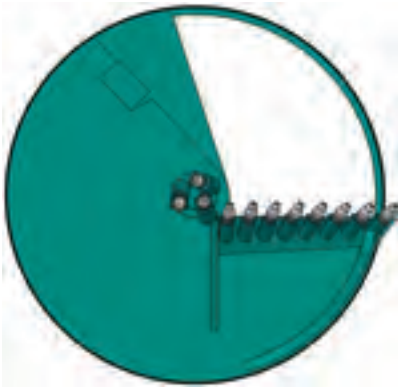
## SILVER

### MAIN USE

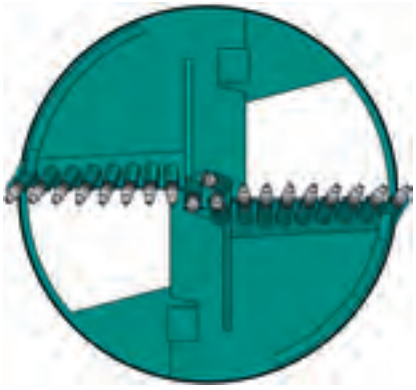
- Suitable for drilling in stratification with hardness range of12.5 – 50 MPa
- Weak and Medium Rock
- Dense sand and gravel

### TECHNICAL SPECIFICATIONS

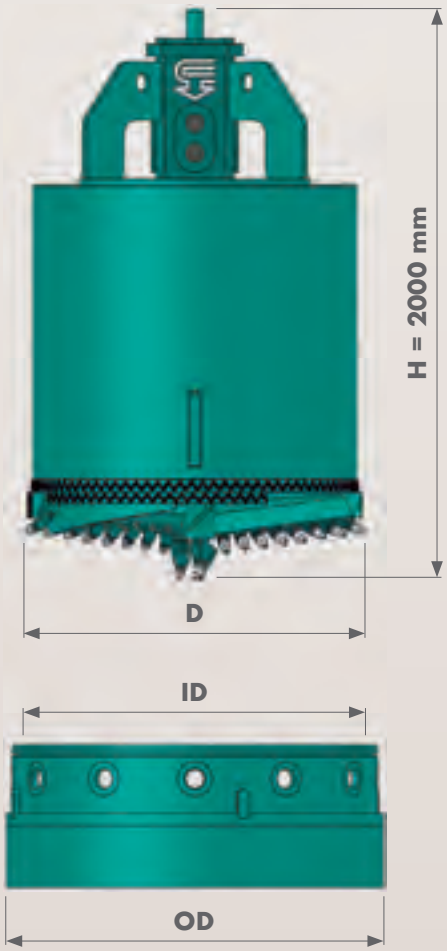
| |
|---|
| **Cylinder** |
| Made of steel ASTM 516/70 |
| Thickness = 20 mm |
| Height = 1000 mm |
| **Bottoms** |
| Fixed and rotating bottom in steel ASTM 516/70 |
| Thickness = 30/40 mm |
| Hard faced ribbings HB 600 on the bottoms |
| **Blades** |
| In steel ASTM 516/70 |
| Thickness = 40 mm |
| **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<br>Casing Outer Diameter | ID<br>Casing Inner Diameter | D<br>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


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.

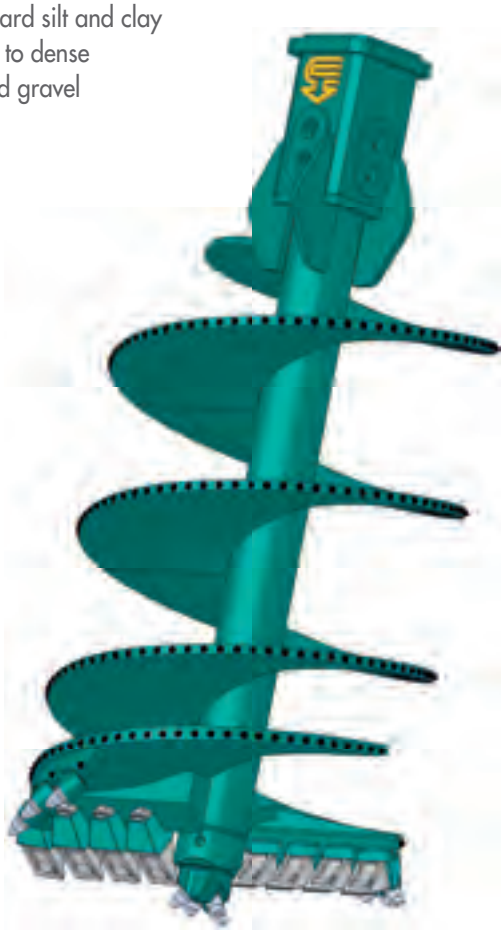
The weights are approximate values.

# SOIL AUGER

## GOLD

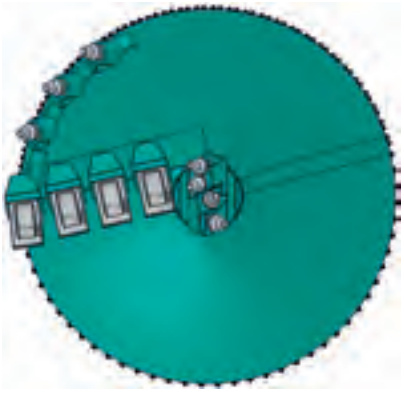
### MAIN USE

- 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



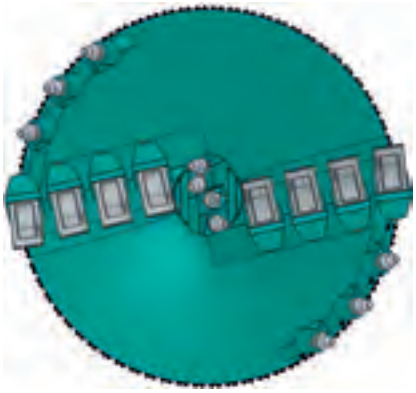
### TECHNICAL SPECIFICATIONS

| |
|---|
| **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 |



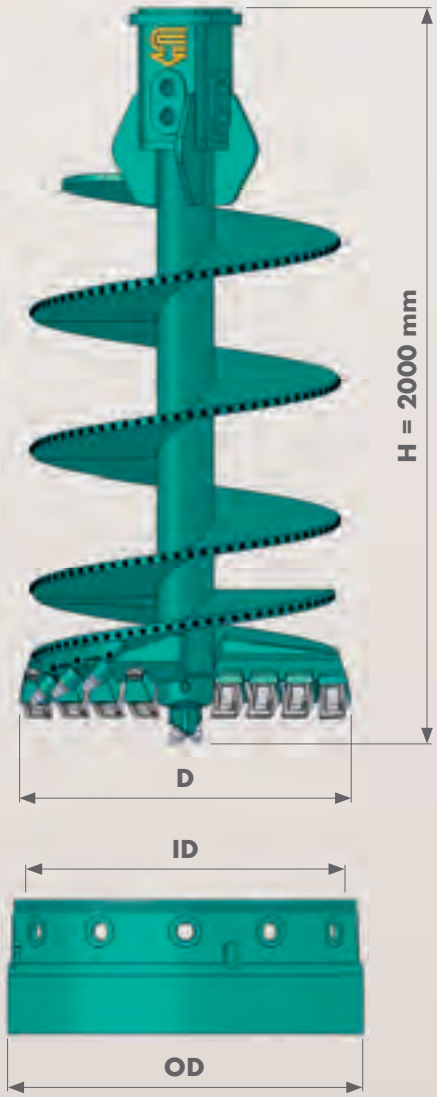
### SINGLE CUT

Up to pile diameter Ø 1000 mm



### DOUBLE CUT

Over pile diameter Ø 1000 mm




| OD<br>Casing Outer Diameter | ID<br>Casing Inner Diameter | D<br>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 |

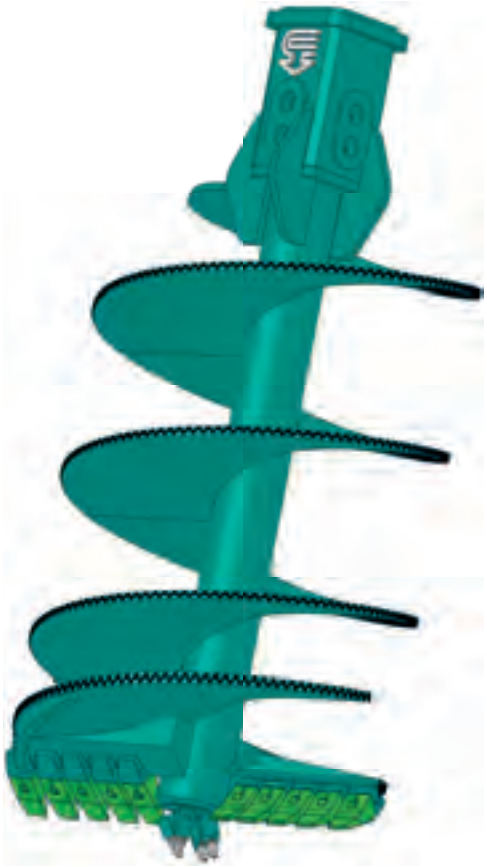
Other dimensions are available on request

# SOIL AUGER

## SILVER

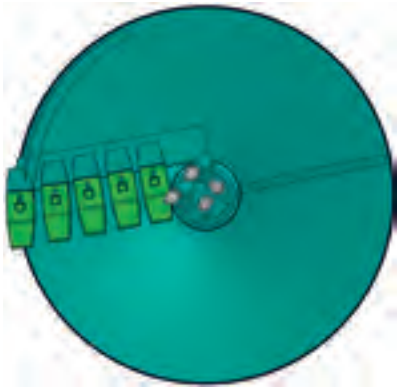
### MAIN USE

- 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



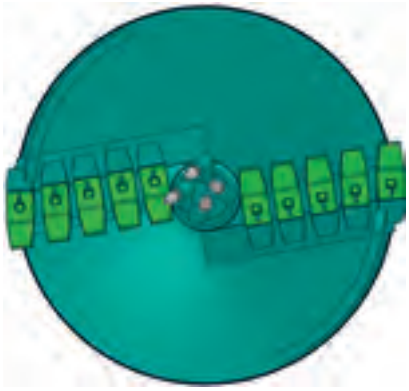
### TECHNICAL SPECIFICATIONS

| |
|---|
| **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 |



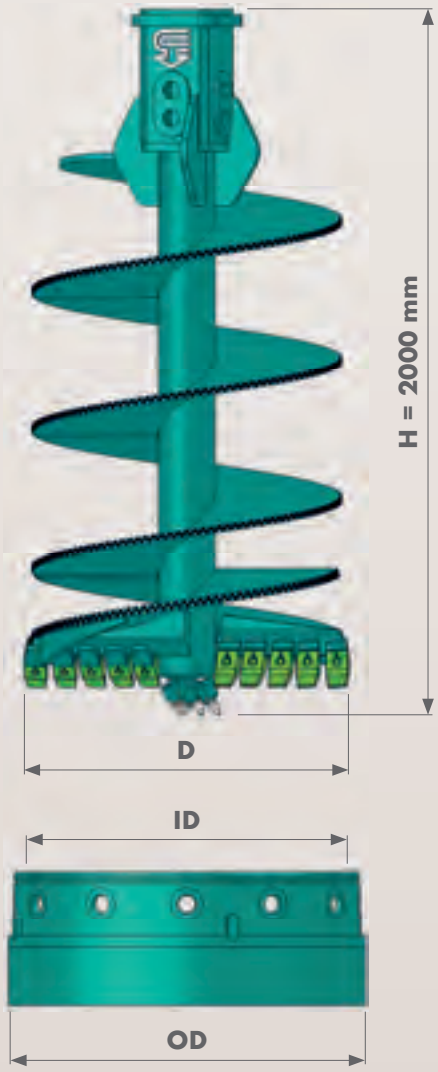
### SINGLE CUT

Up to pile diameter Ø 1000 mm



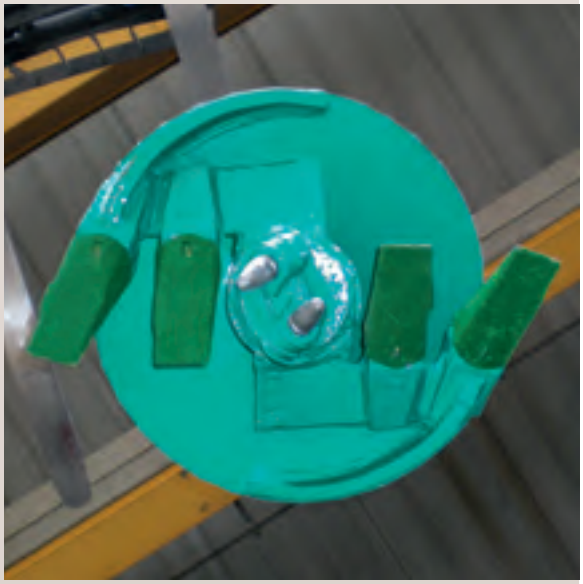
### DOUBLE CUT

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

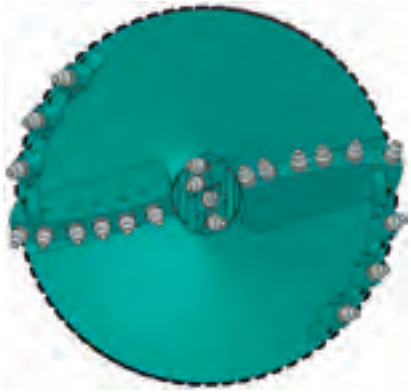
- Suitable for drilling in stratification with hardness range of 0 – 12.5 MPa
- Medium to hard rock
- Very dense sand and gravel

### 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 |

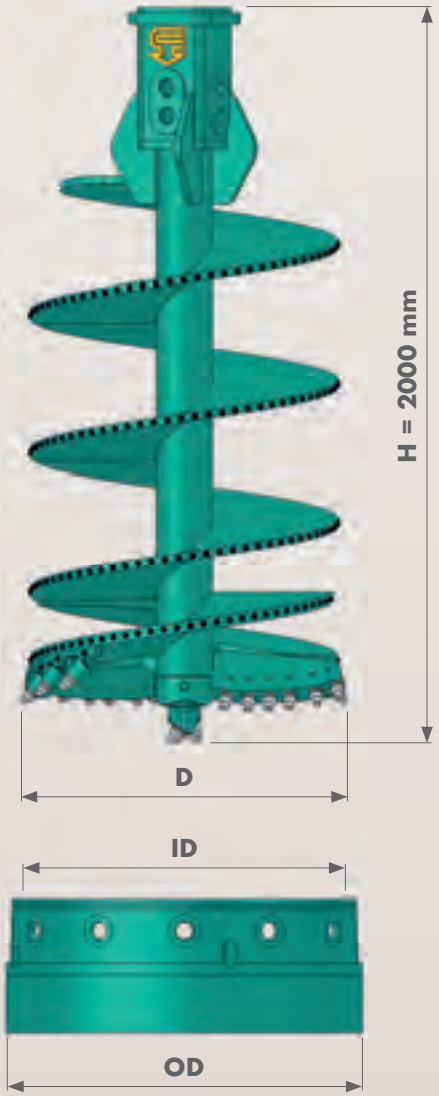
### SINGLE CUT

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

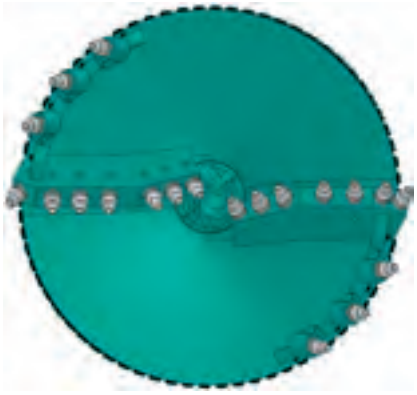
- Suitable for drilling in stratification with hardness range of 12.5 – 50 MPa
- Hard to very hard rock
- Very suitable in fractured rock

### 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 |

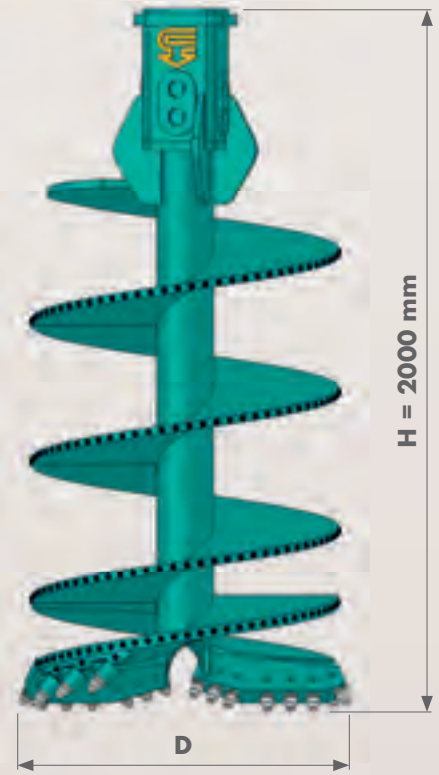
### SINGLE CUT

Up to pile diameter Ø 1000 mm



### DOUBLE CUT

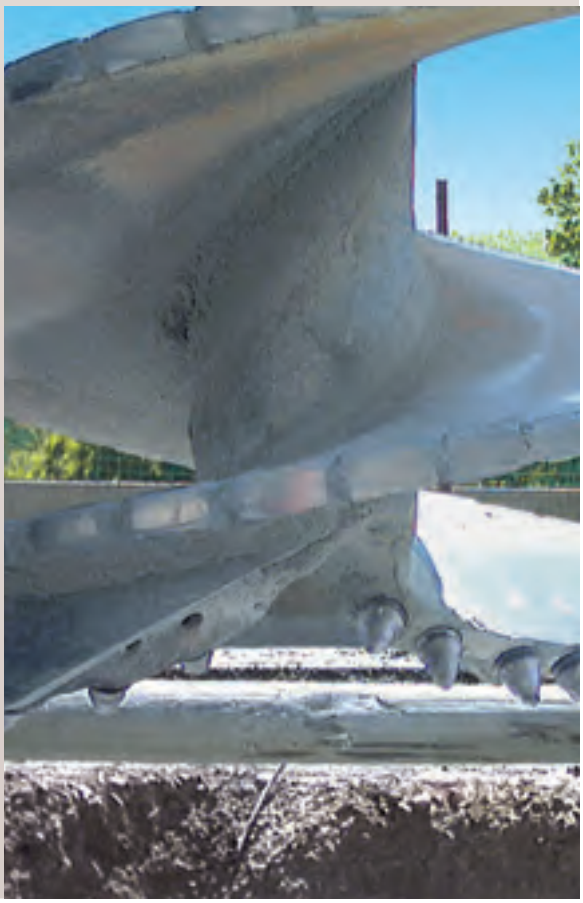
Over pile diameter Ø 1000 mm





| 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

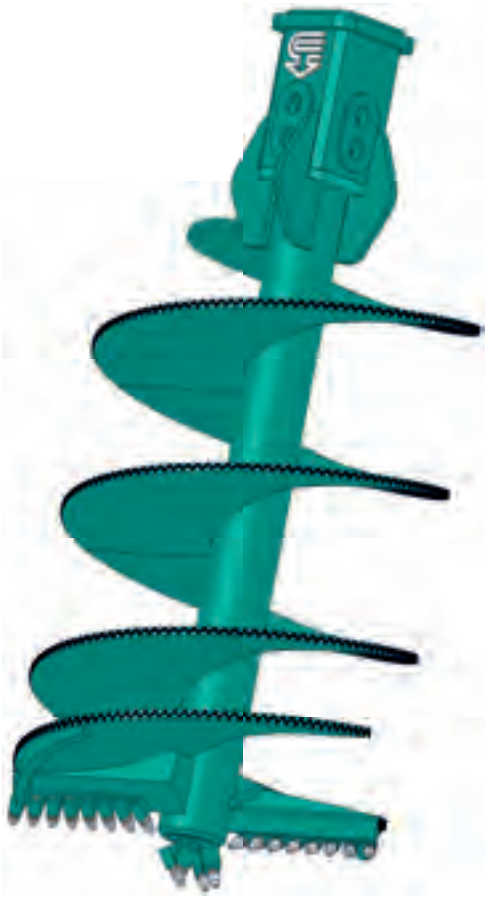


# ROCK AUGER

## SILVER

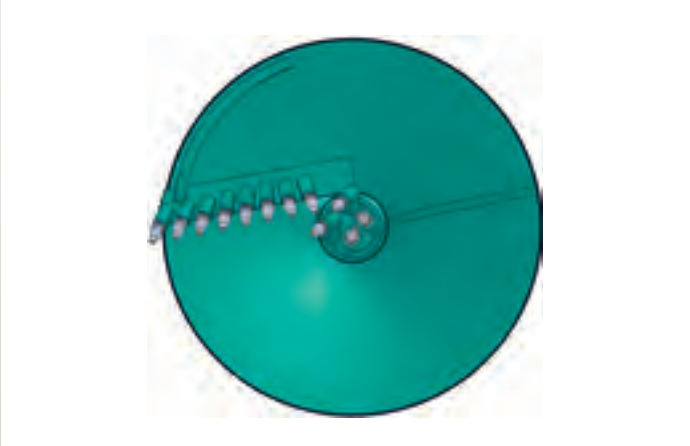
### MAIN USE

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



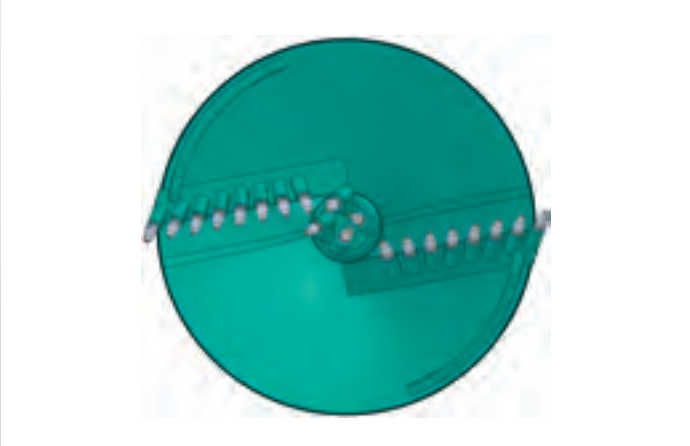
### TECHNICAL SPECIFICATIONS

| |
|---|
| **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 |



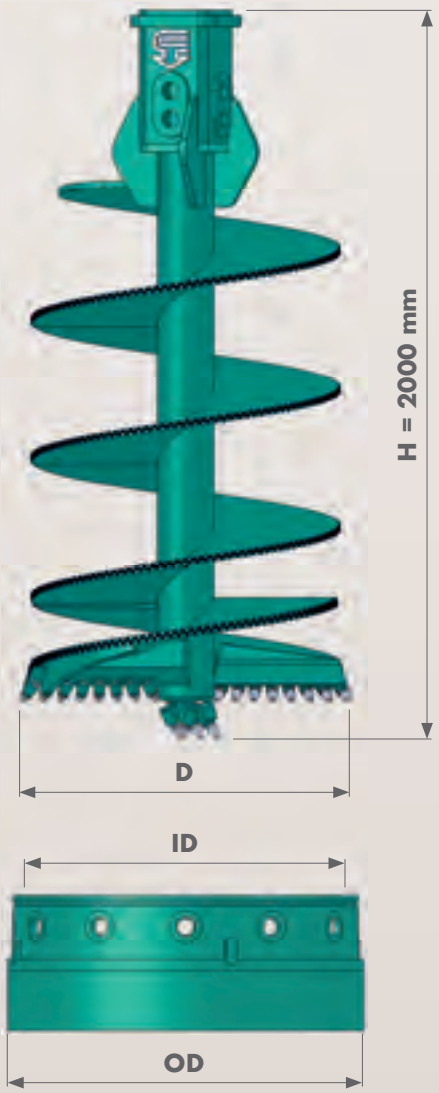
### SINGLE CUT

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

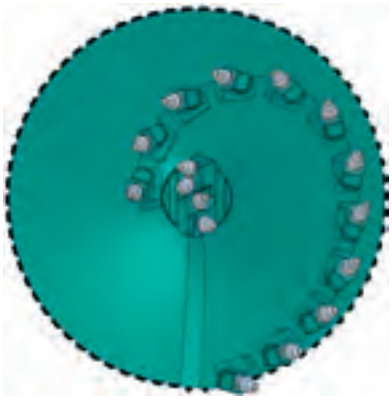
## GOLD

### MAIN USE

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

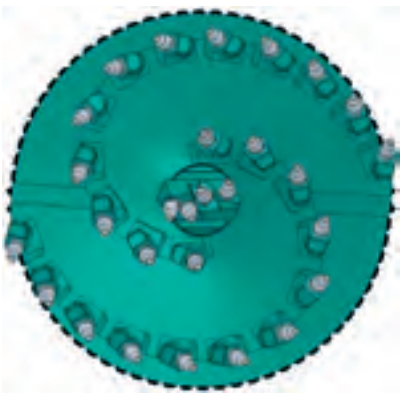
### TECHNICAL SPECIFICATIONS

| |
|---|
| **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 |



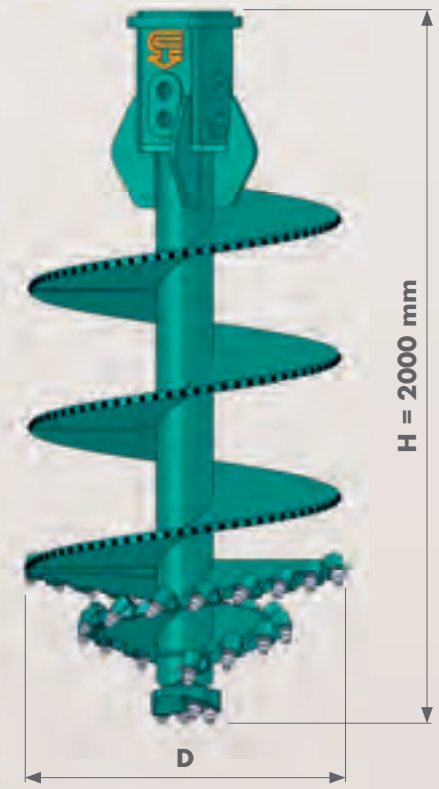
### SINGLE CUT

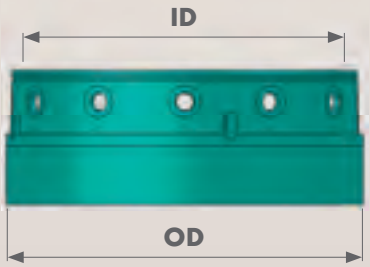
Up to pile diameter Ø 1000 mm



### DOUBLE CUT

Over pile diameter Ø 1000 mm




| OD<br>Casing Outer Diameter | ID<br>Casing Inner Diameter | D<br>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

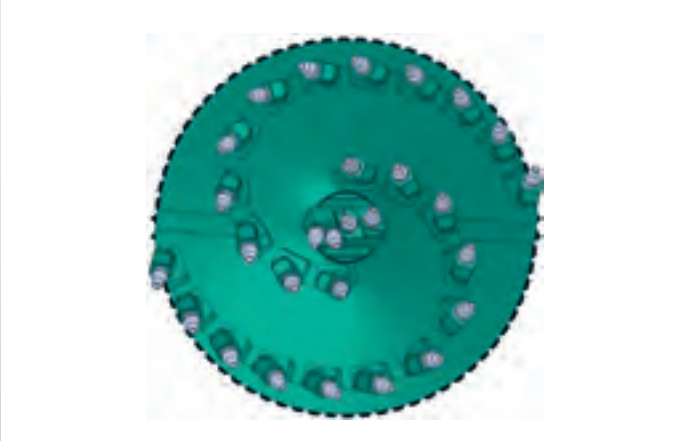
## GOLD

### MAIN USE

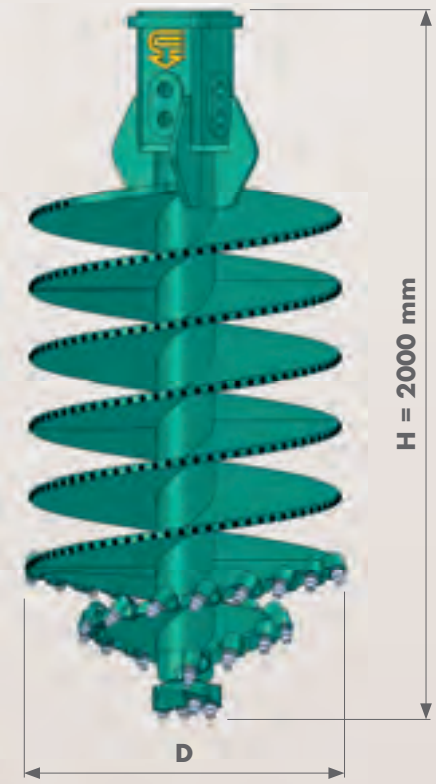
· Suitable for drilling in stratification with hardness range of 50 – 100 MPa
· Moderately strong to strong rock

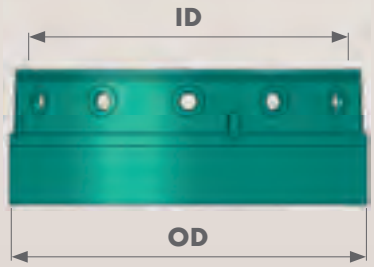
### TECHNICAL SPECIFICATIONS

| |
|---|
| **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 |

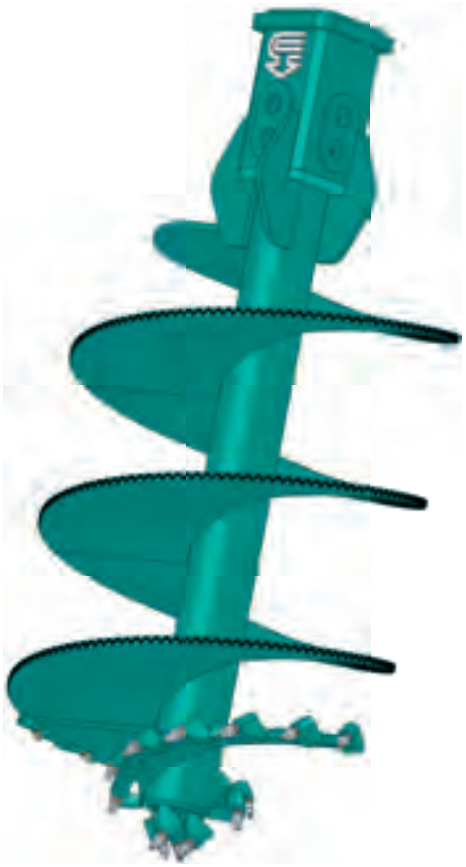
Other dimensions are available on request

# CONICAL ROCK AUGER

## SILVER

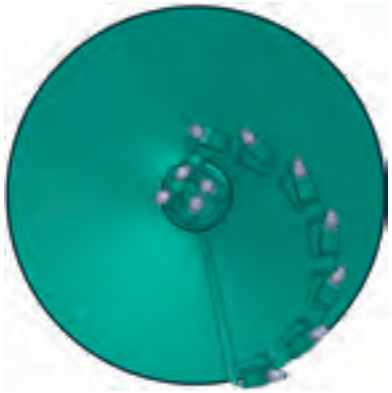
### MAIN USE

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



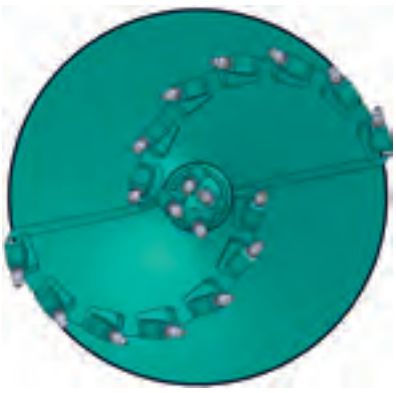
### TECHNICAL SPECIFICATIONS

| |
|---|
| **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



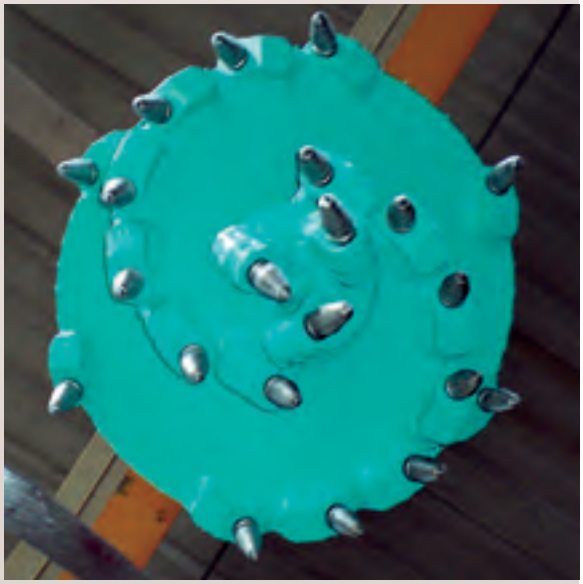
### DOUBLE CUT

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




HF337 02 002

# 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.

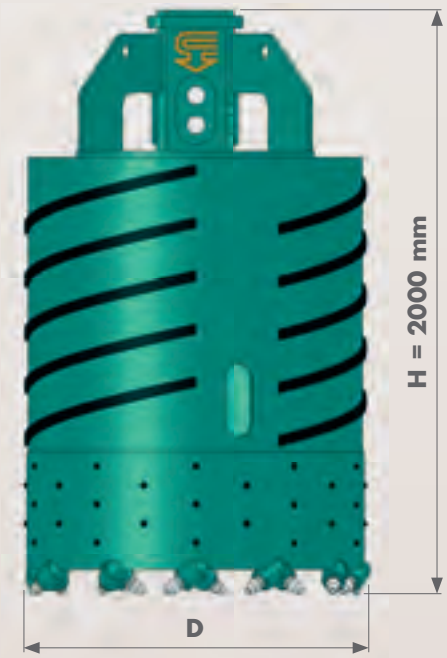
# GOLD

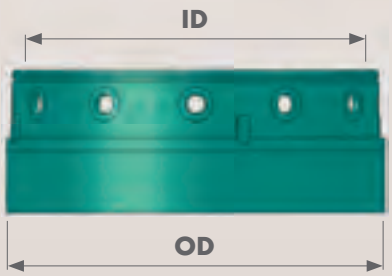
## MAIN USE

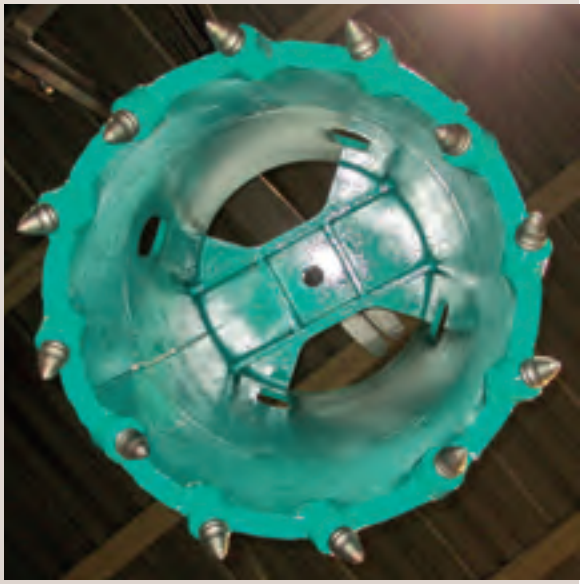
· Suitable for drilling in stratification with hardness range of 50 – 100 MPa
· Suitable for cutting through fissured and fractured strong rock

## 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

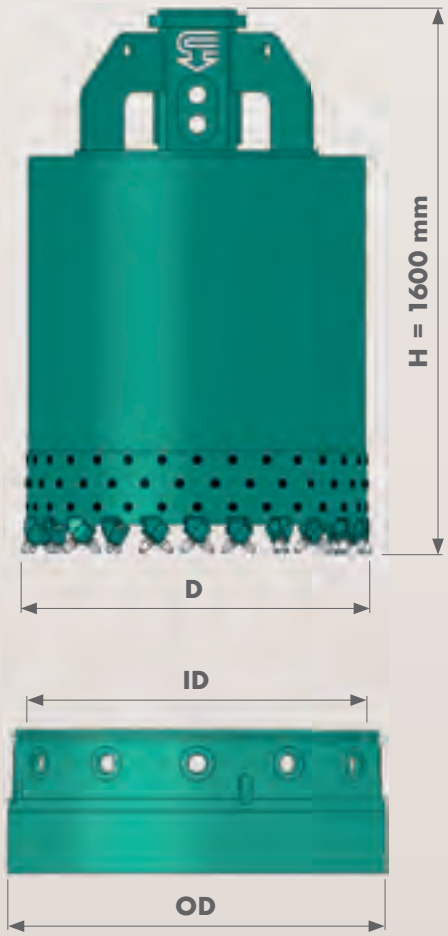
# SILVER

## 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<br>Casing Outer Diameter | ID<br>Casing Inner Diameter | D<br>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

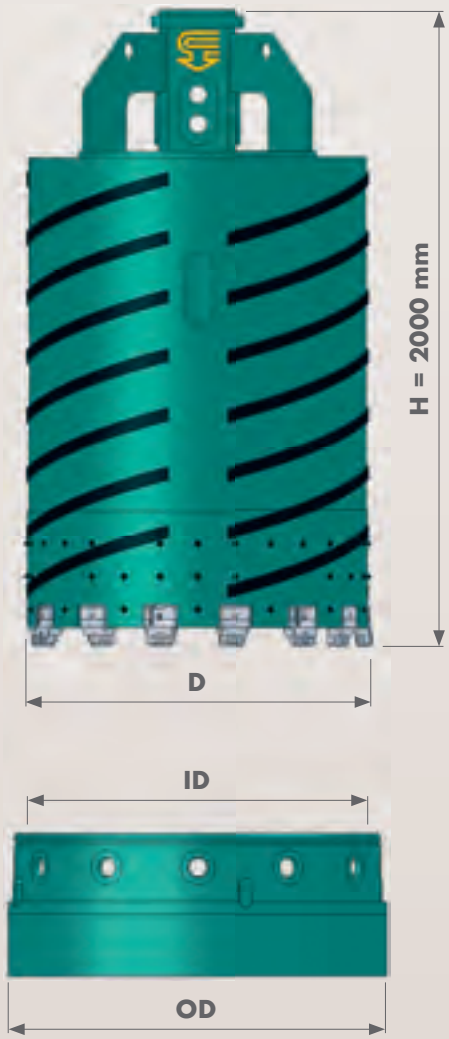
## GOLD

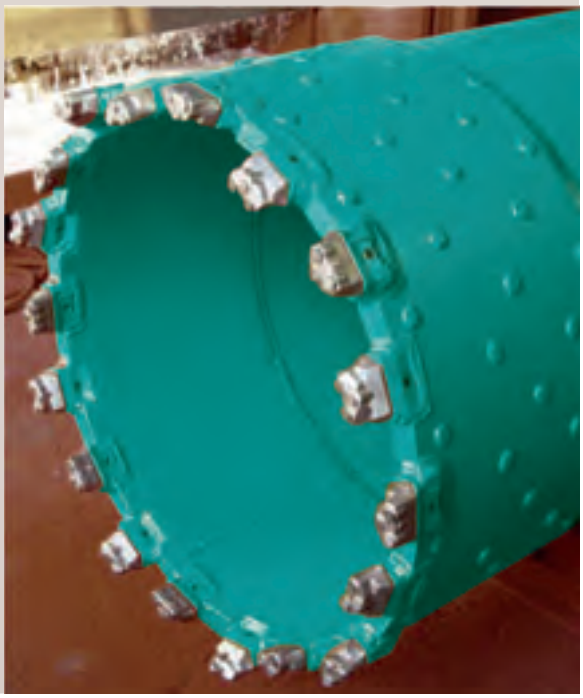
### MAIN USE

- 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<br>Casing Outer Diameter | ID<br>Casing Inner Diameter | D<br>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

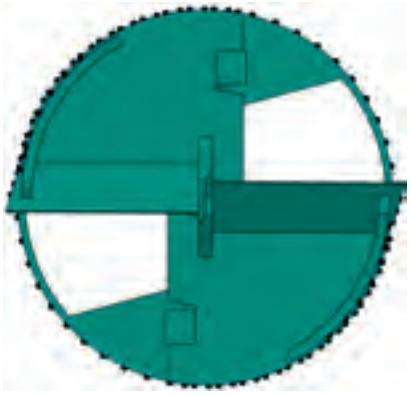
· For cleaning the bottom of pile in stratification with Hardness > 12.5 MPa

### 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** |

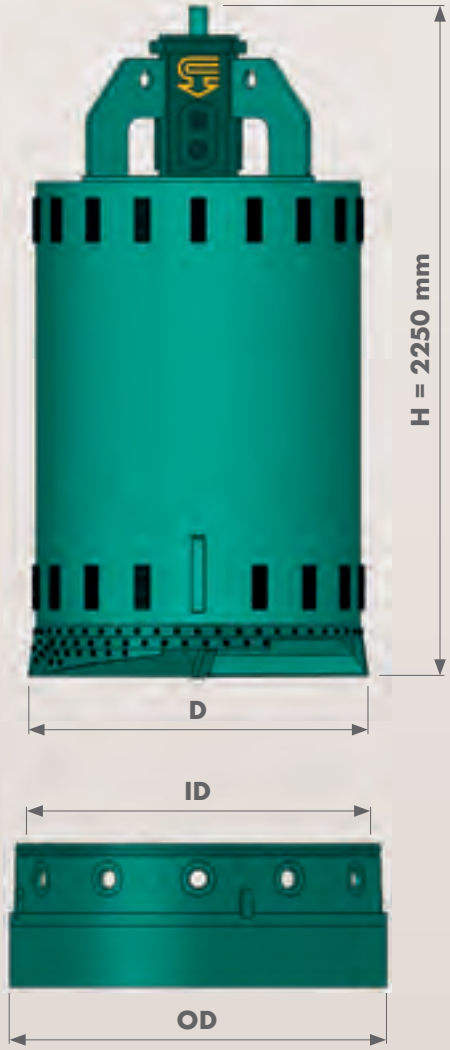
### SINGLE OPENING

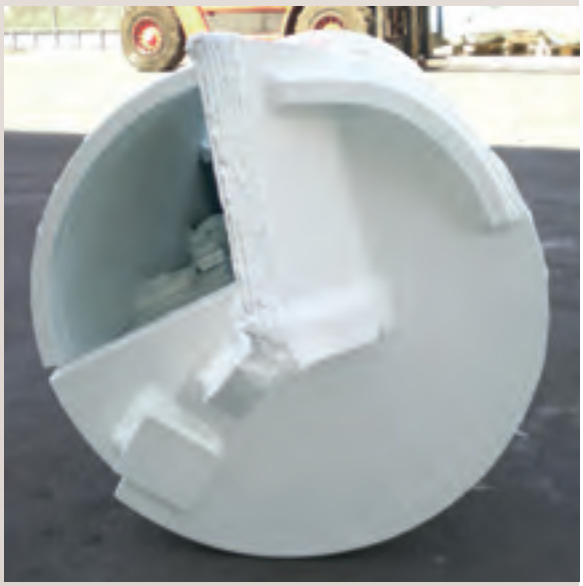
Up to pile diameter Ø 1000 mm

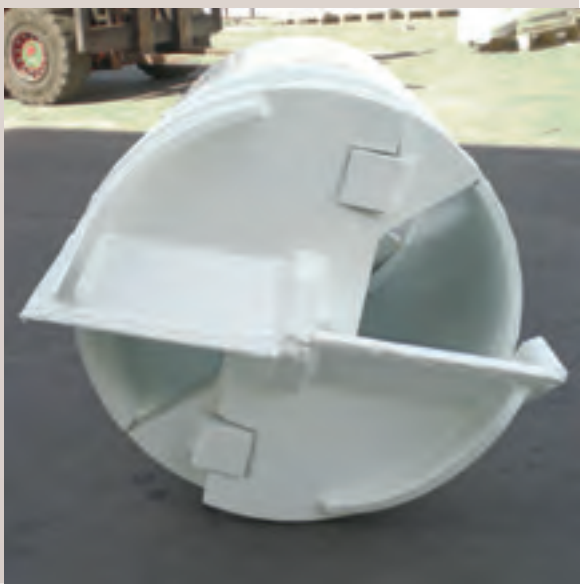


### DOUBLE OPENING

Over pile diameter Ø 1000 mm





| OD<br>Casing Outer Diameter | ID<br>Casing Inner Diameter | D<br>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

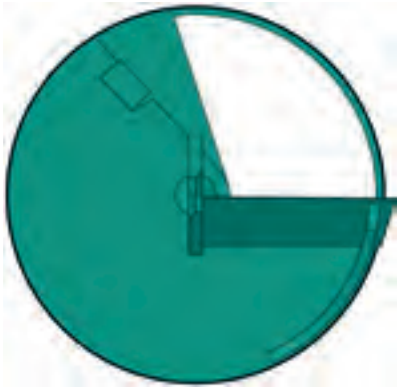
## SILVER

### MAIN USE

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

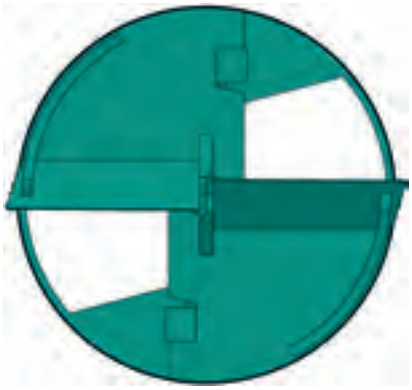
### TECHNICAL SPECIFICATIONS

| |
|---|
| **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** |



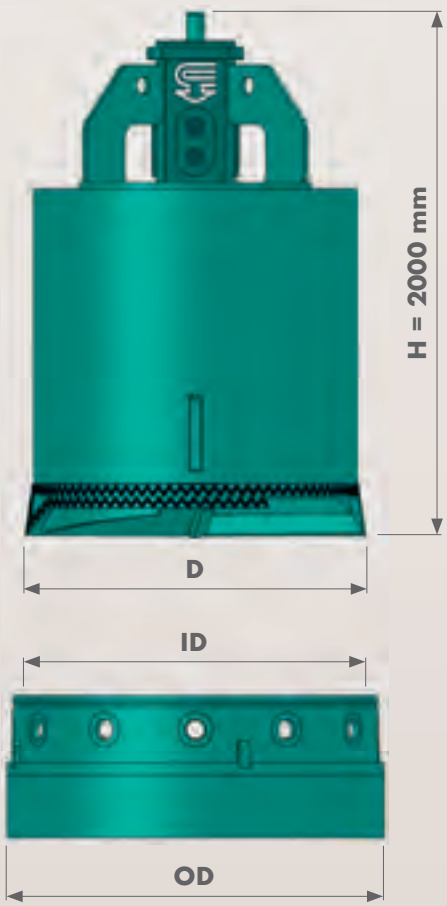
### SINGLE OPENING

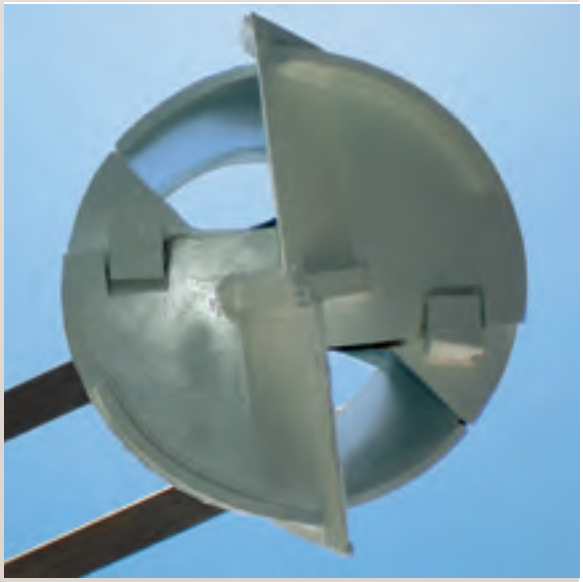
Up to pile diameter Ø 1000 mm



### DOUBLE OPENING

Over pile diameter Ø 1000 mm



| OD<br>Casing Outer Diameter | ID<br>Casing Inner Diameter | D<br>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

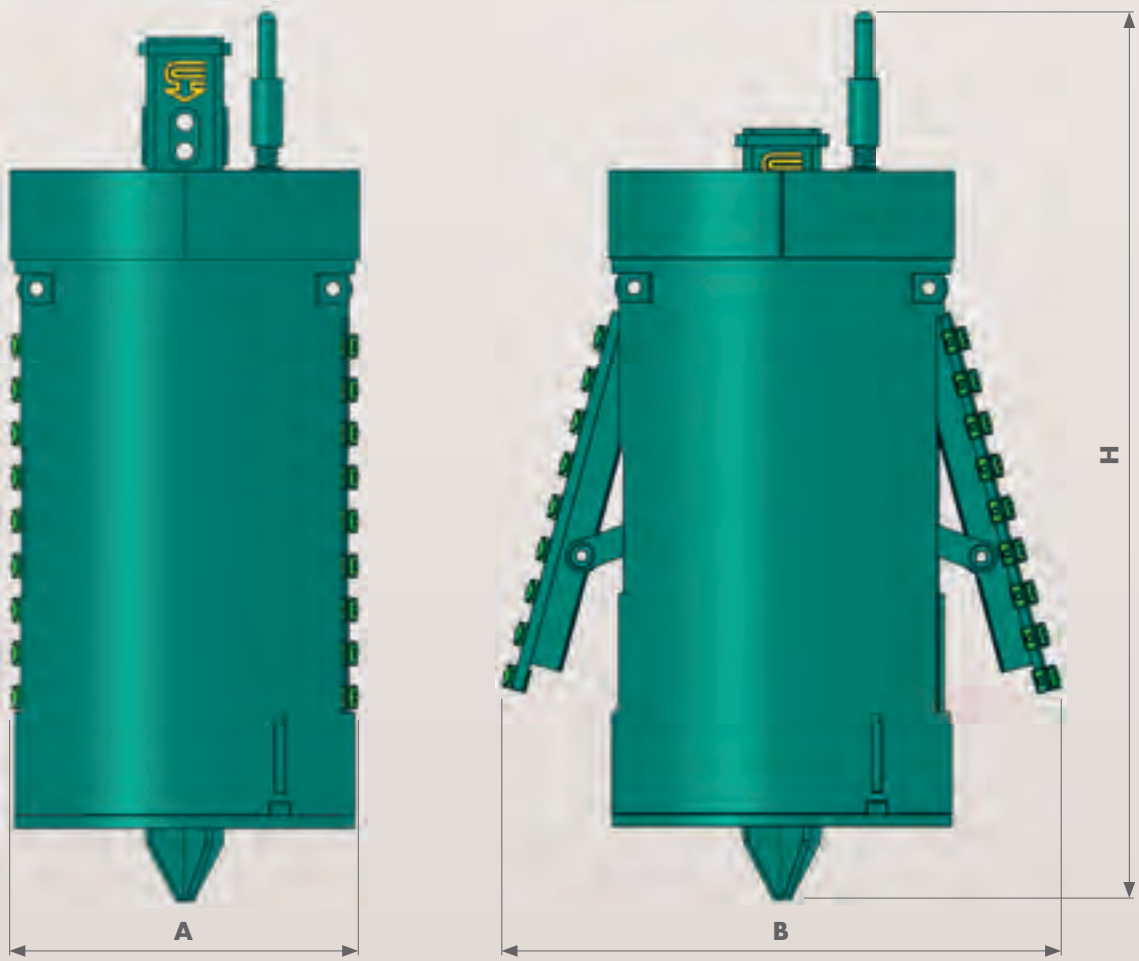
For projects that require enlarged pile bases in cohesive materials these tools called Belling Buckets are designed for the use with high torque drilling rigs. The usual finished angle of bell is 60° and the standard increase of diameter is about 2 times the shaft diameter.
A vertical sliding yoke is 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<br>Closed Reamer | B<br>Open Reamer | H<br>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

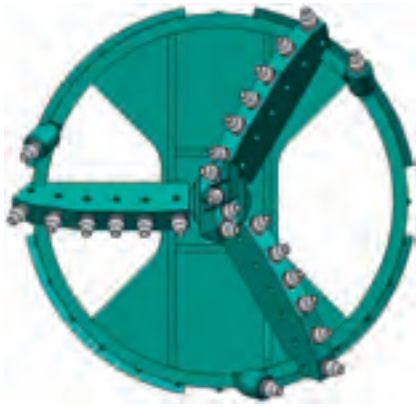
## GOLD

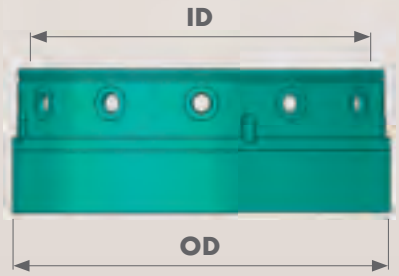
### MAIN USE

- 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

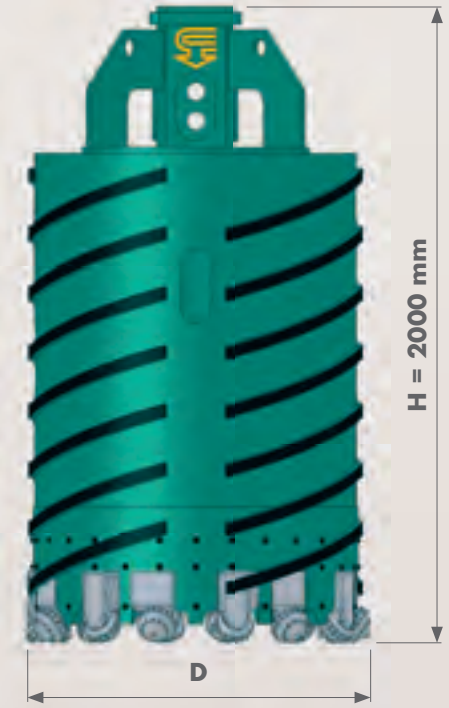
## GOLD

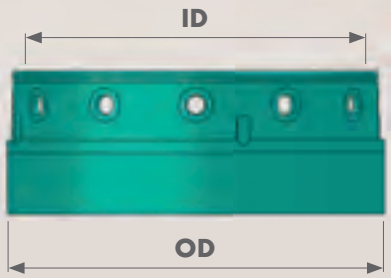
### MAIN USE

- 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

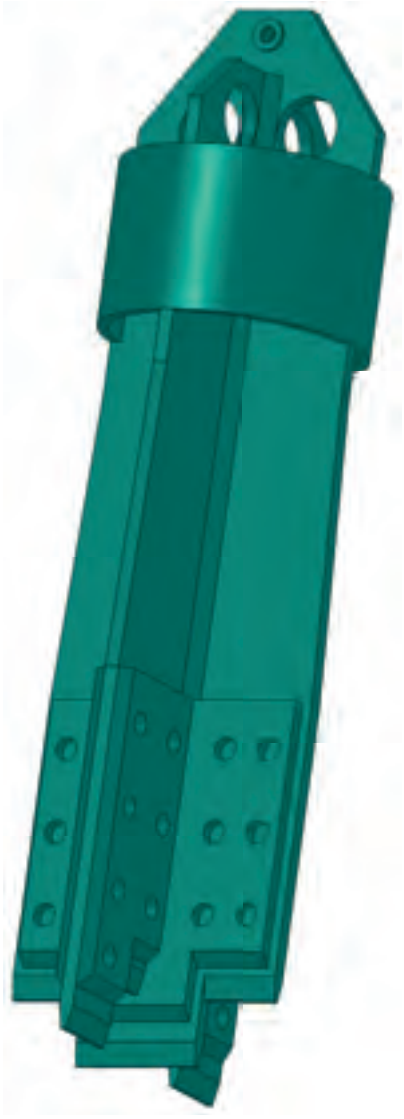
The chisel is usually used in combination with grabs to pound and fracture stratification with hardness > of 100 MPa

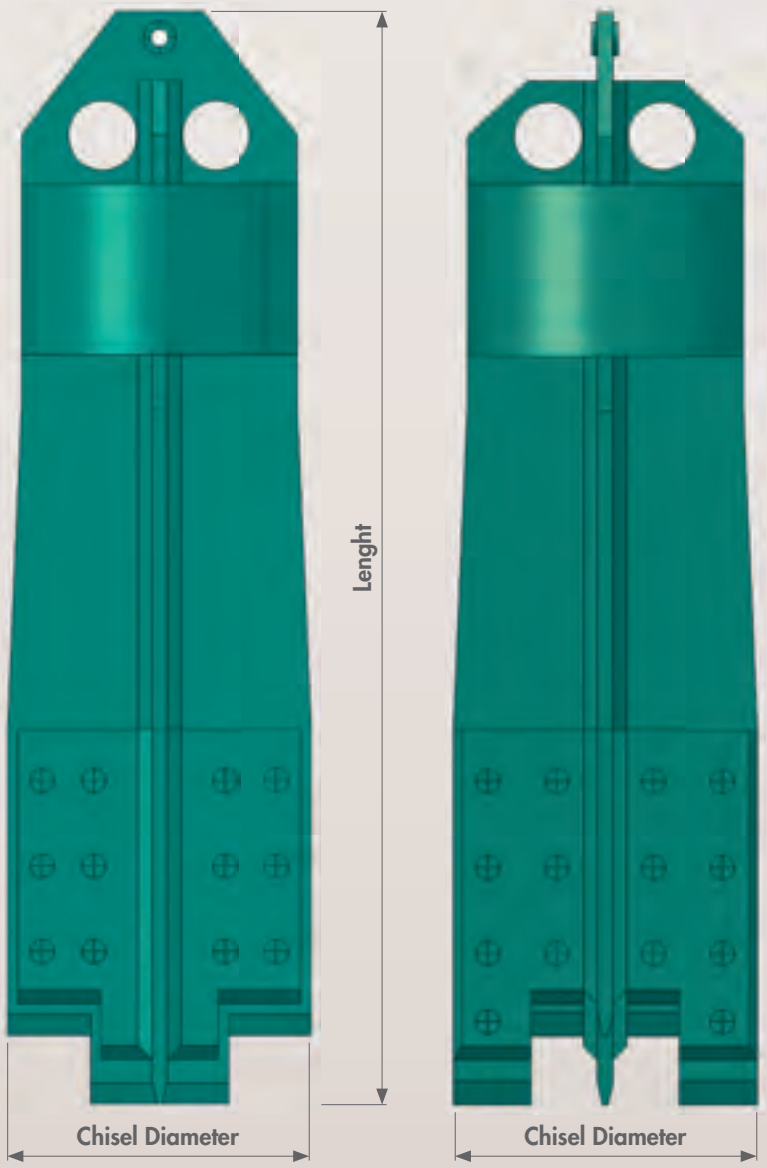
**It is made of high quality steel with**

· 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.

# CASING

## OVERVIEW SCREW TYPE

Casing Drive Adapter with Flange for Cardan Joint

Casing Drive Adapter with Female kelly Box

Casing Drive Pin

Casings Column

Intermediate Casing

Casing Joints

Casing Shoe type A

Casing Shoe type B

Casing Shoe type C

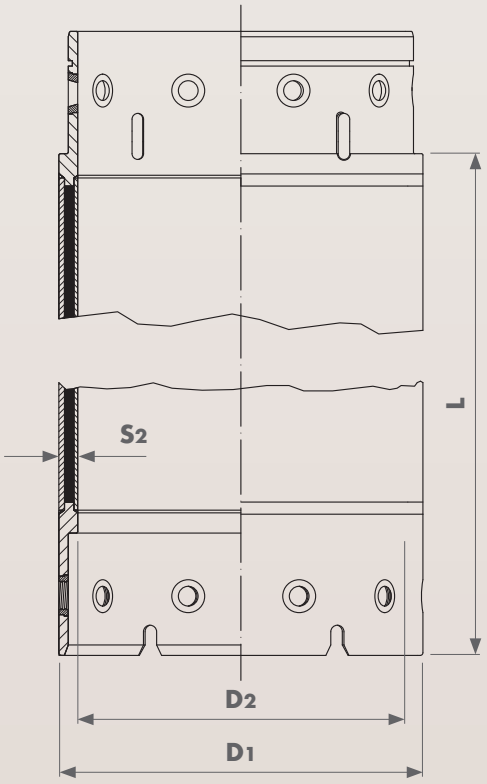
# CASINGS SCREW TYPE · DOUBLE-WALL CASINGS

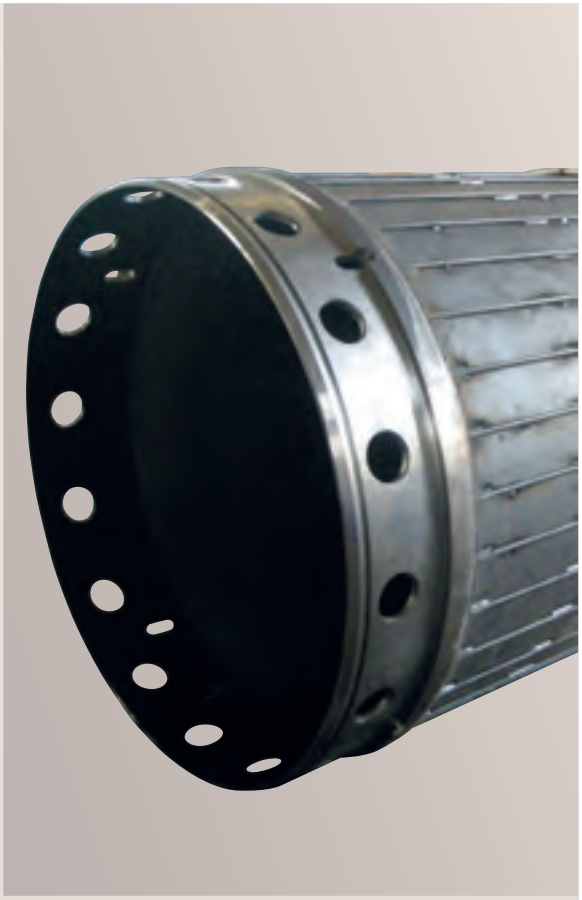
**EFFECTIVE LENGHT**

| 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 |

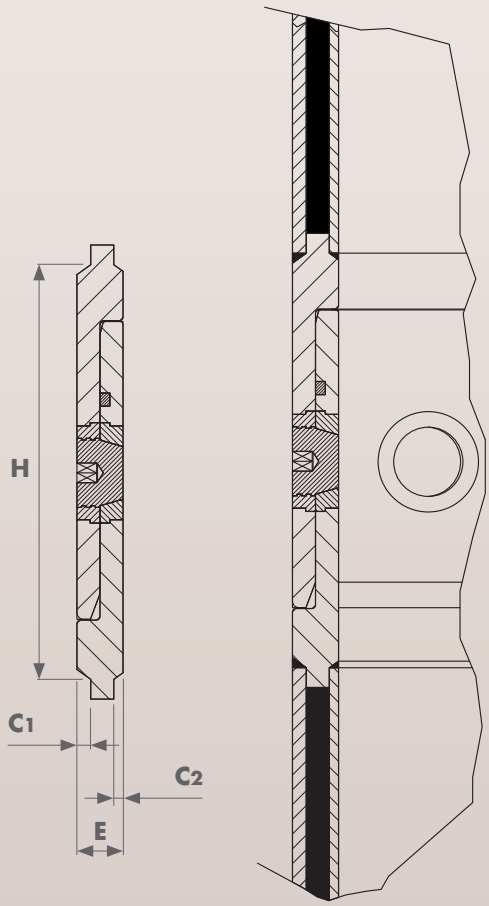
Double-Wall Casings can be used universally.
The use of oscillators requires the application of Double-Wall Casings.
Other dimensions are available on request.

# DOUBLE WALL CASINGS

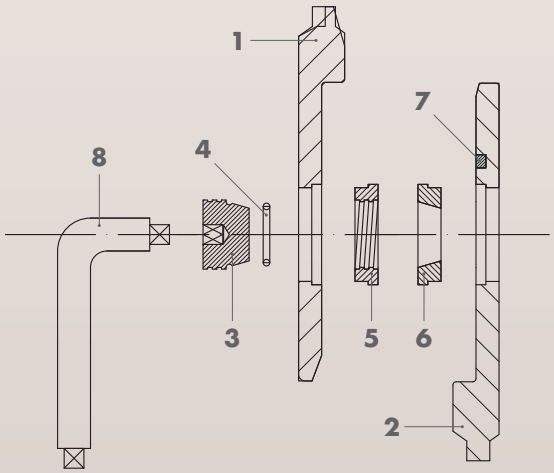


# CASINGS JOINTS




# DETAILS




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

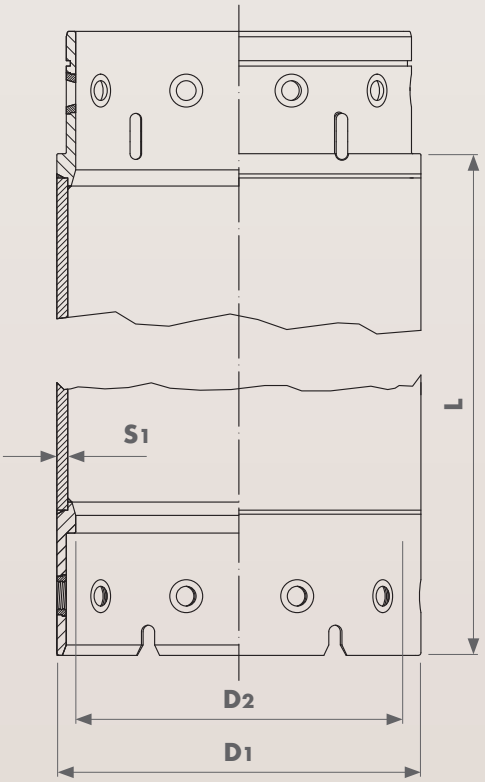
# CASINGS SCREW TYPE · SINGLE-WALL CASINGS

**EFFECTIVE LENGHT**

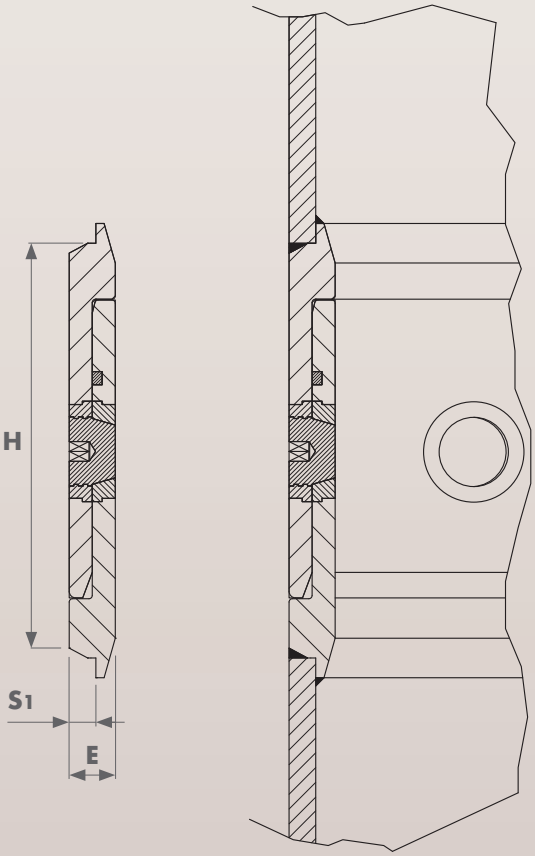
| D1 / D2 | 1m | 2m | 3m | 4m | 5m | 6m | S1 | E | Bolt |
|---|---|---|---|---|---|---|---|---|---|
| mm | kg | kg | kg | kg | kg | kg | mm | mm | Num. |
| **620 / 540** | 360 | 510 | 660 | 810 | 960 | 1110 | 12 / 15 | 40 | 8 |
| **750 / 670** | 435 | 615 | 795 | 975 | 1155 | 1335 | 12 / 15 | 40 | 10 |
| **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.

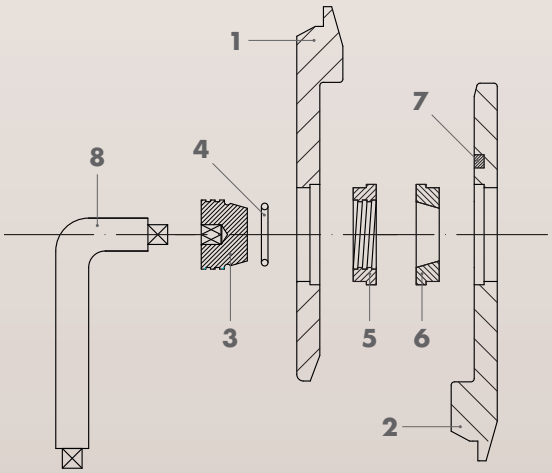
# SINGLE WALL CASINGS




# CASINGS JOINTS




# DETAILS




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

# CASINGS SCREW TYPE

## CASING SHOES

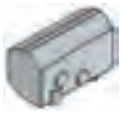
| | LONG VERSION (Lenght = 2 m) | | | | SHORT VERSION (Lenght = 1 m) | | |
|---|---|---|---|---|---|---|---|
| D1 / D2 | H1 | S3 / S4 | Weight | Teeth | H3 | a | Weight |
| mm | mm | mm | kg | Nos. | mm | mm | kg |
| 620 / 540 | 2232 | 40 / 35 | 1300 | 16 | 1232 | 948 | 716 |
| 750 / 670 | 2232 | 40 / 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

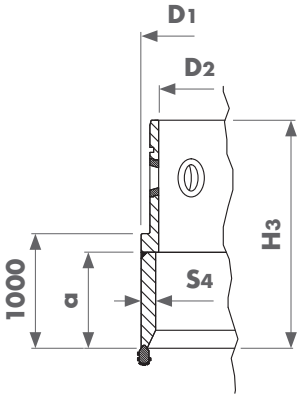
Optimum shape for cutting and reaming.
Hard metal tips on outside inclined shoulder eases extraction of casing.
Aggressive cutting behaviour.

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

## TYPE C

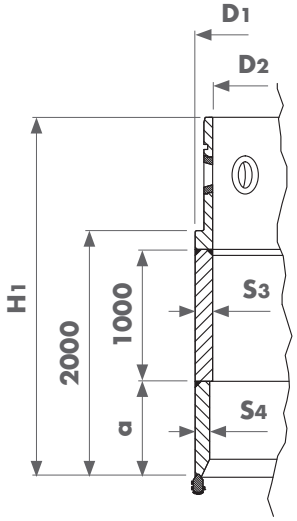
Optimum shape for milling, cutting and reaming of soil.
The shape of the teeth has been optimised to produce a single reversible tooth.
Cutting properties, material flow at the tooth and wear resistance are excellent.
Very aggressive cutting behaviour.

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




## SHORT VERSION

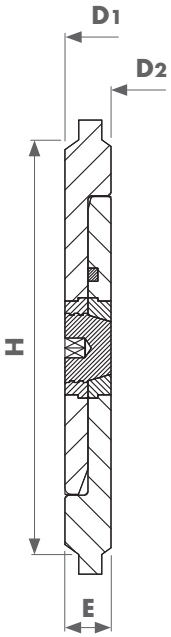
Cutting ring can be equipped with A, B or C type teeth (other teeth type on request).
Male joint and cutting ring are machine faced.
Cutting ring welded directly to male joint.




## 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

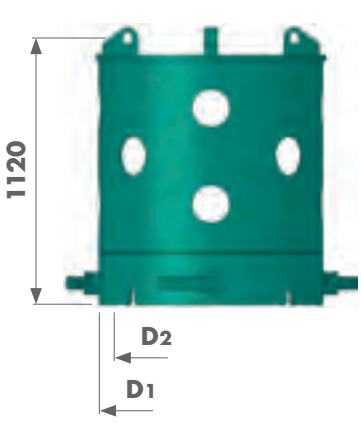



## CASING JOINT DIMENSIONS

| 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

Casings Column

Casing Drive Adapter
with Flange for Cardan Joint

Casing Drive Adapter
with Female kelly Box

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.

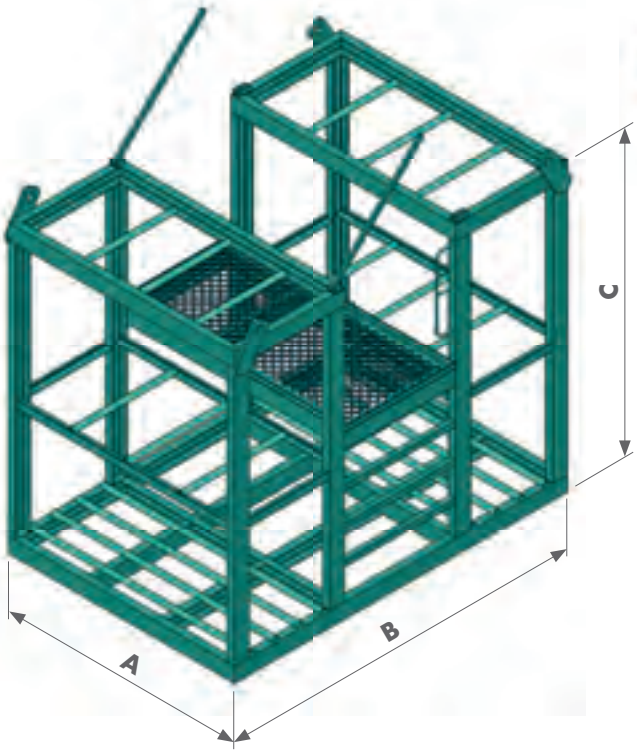
Tremie pipes assembly is provided with set of accessories such as:

- **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.

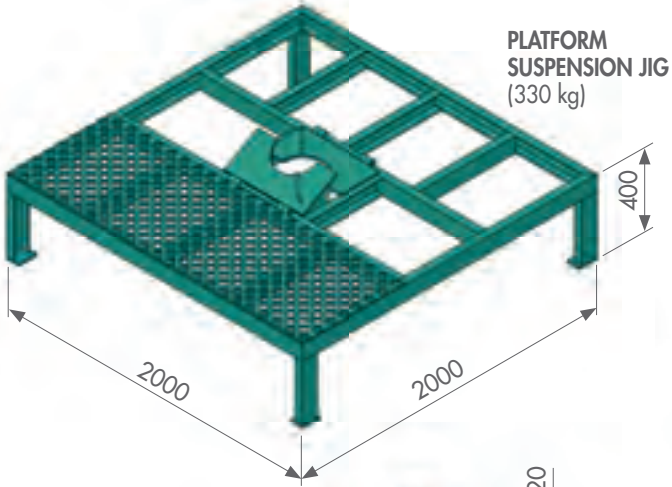
# TREMIE PIPES

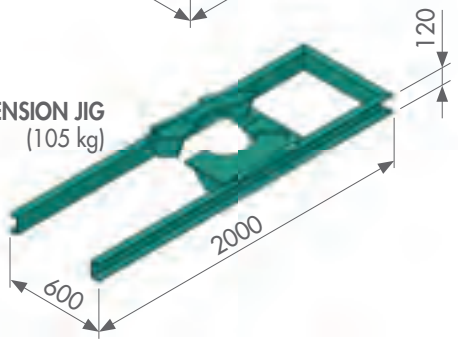
## WITH WIRE CABLES


RACK



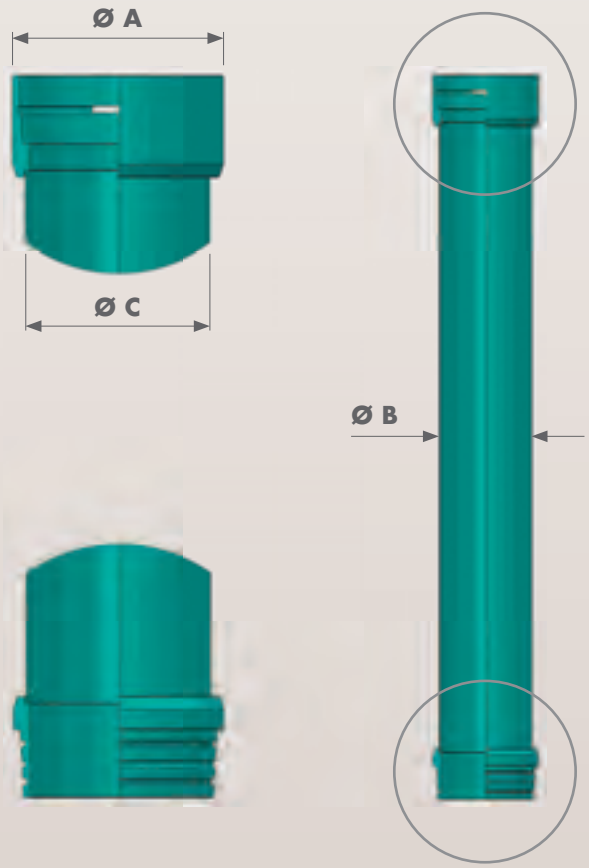

| | A | B | C | WEIGHT |
|---|---|---|---|---|
| | mm | mm | mm | kg |
| **Rack 12** | 1160 | 2265 | 2100 | 530 |
| **Rack 16** | 1530 | 2265 | 2100 | 620 |
| **Rack 20** | 1900 | 2265 | 2100 | 660 |
| **Rack 24** | 1530 | 2870 | 2100 | 700 |




## THREADED

## TREMIE PIPES WITH WIRE CABLES

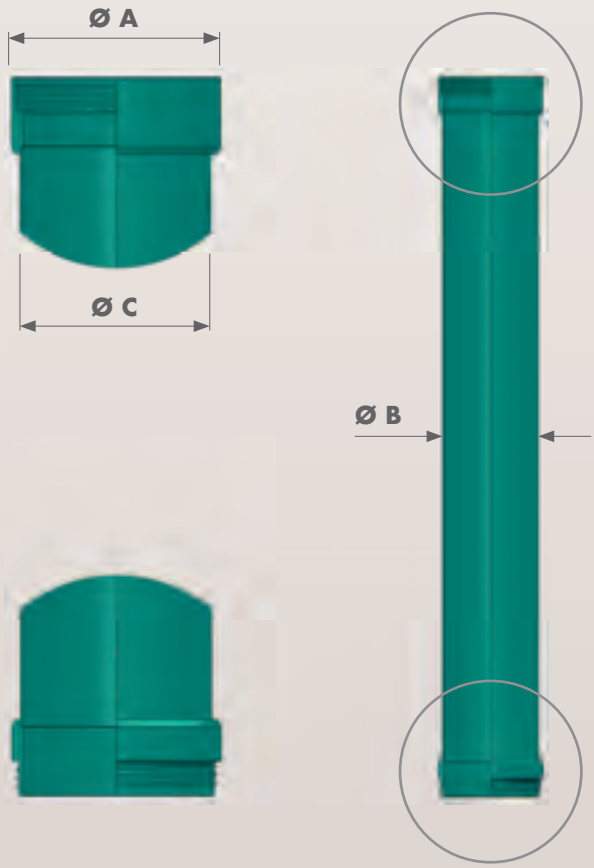



| Ø A<br>Tremie Joint | Ø B<br>Tremie Pipe | Ø C<br>Concrete Passage |
|---|---|---|
| mm | mm | mm |
| 254 | 219 | 204 |
| 298.5 | 250 | 242.5 |
| 310 | 273 | 260 |

Other dimensions are available on request

| Ø A | Weight<br>for L = 1 m | Weight<br>for additional meter |
|---|---|---|
| mm | kg | kg |
| 254 | 40 | 18 |
| 298.5 | 48 | 19 |
| 310 | 65 | 25 |

## THREADED TREMIE PIPES




| Ø A<br>Tremie Joinbt | Ø B<br>Tremie Pipe | Ø C<br>Concrete Passage |
|---|---|---|
| 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<br>for L = 1 m | Weight<br>for additional meter |
|---|---|---|
| mm | kg | kg |
| 219 | 32 | 15 |
| 244.5 | 40 | 18 |
| 273 | 55 | 19 |


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.

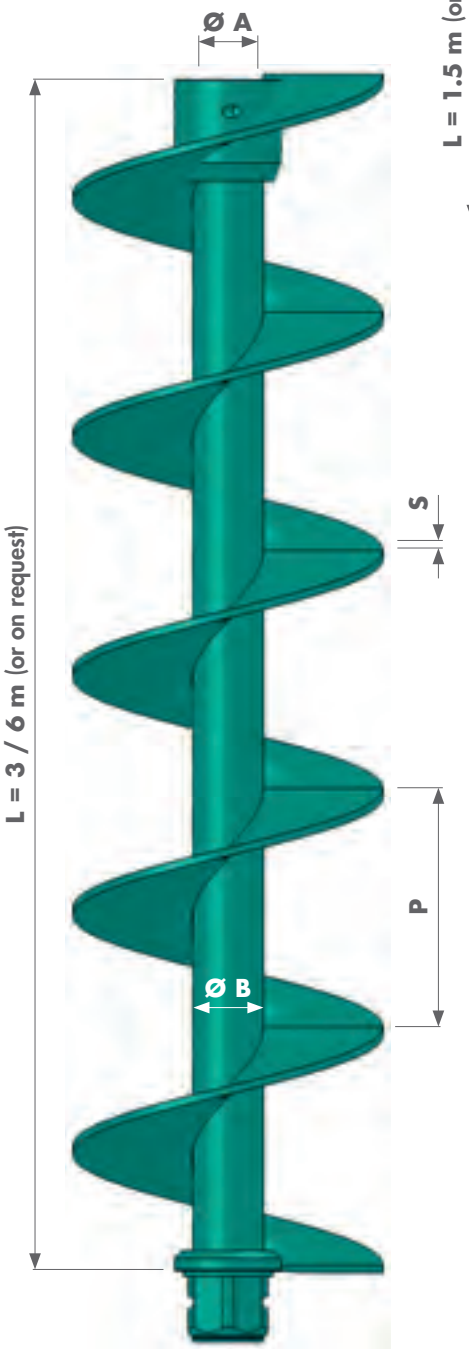
CFA strings are provided with inner tube diameter 5" and 6" to fit concrete piping already installed on the base rigs. Of course others dimensions are available on request

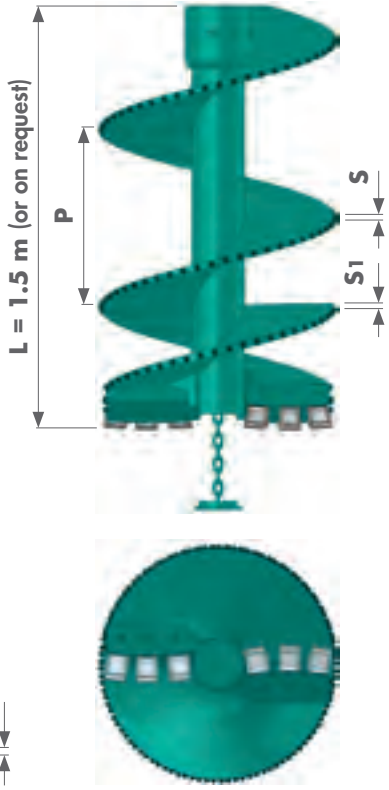
Coupling of CFA sections is by high resistance hexagonal, fully machined M/F joints, made of special case-hardened steel.

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

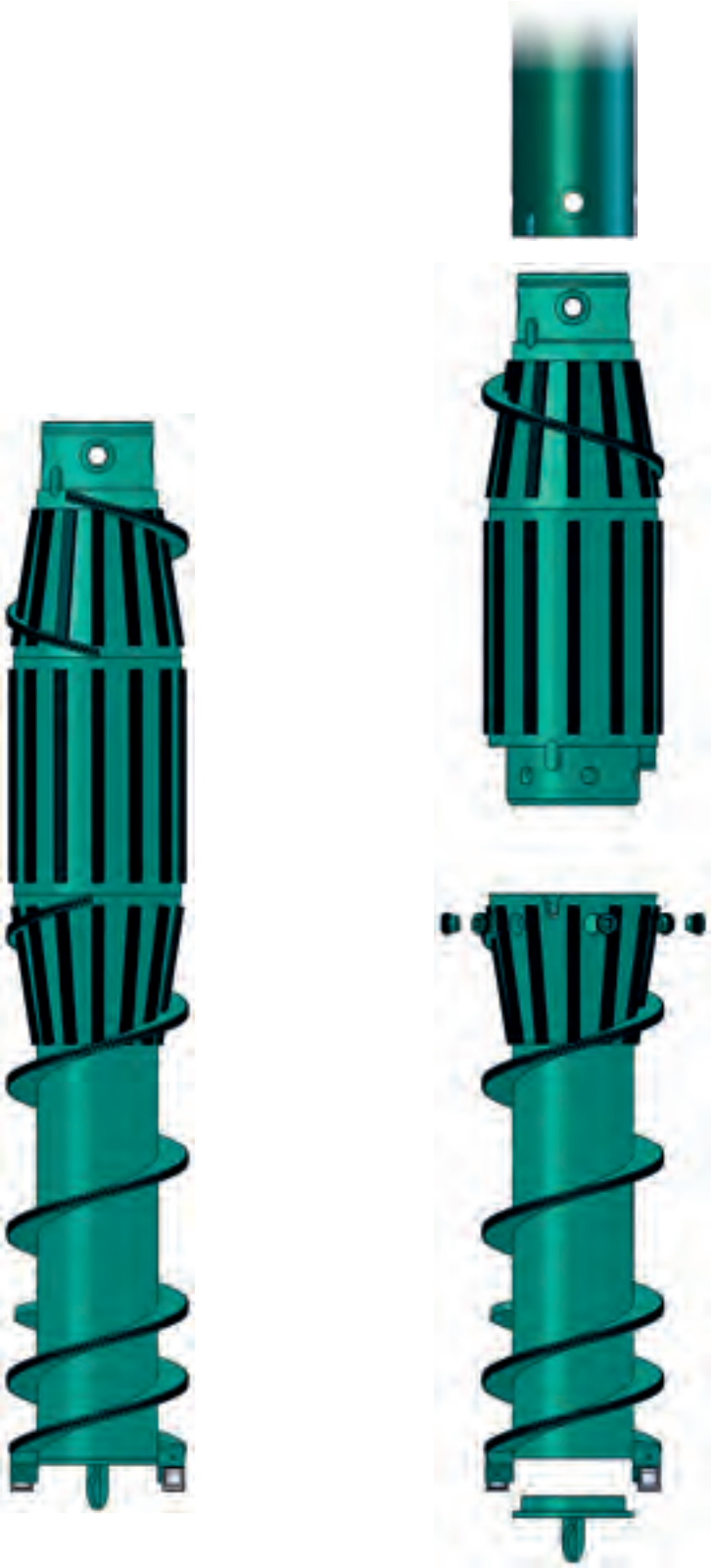
- FDP with Male or Female coupling on request
- One auger flight 360° anticlockwise
- Displacement body length on request
- Displacement diameter on request
- Flights thickness and pitch on request

- 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.

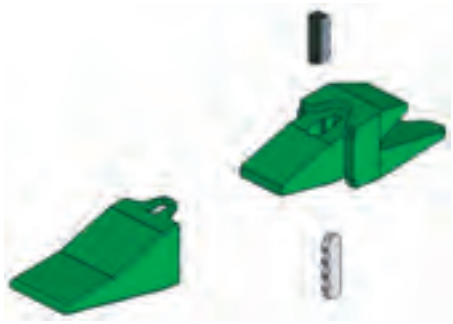
On reaching the final depth the reinforcement cage is inserted into the hollow drill stem so the bottom drill bit is lost.

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 |

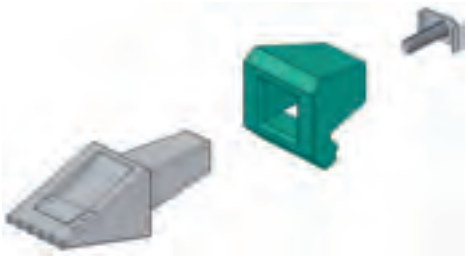
## TOOTH 25 T

| DESCRIPTION |
|---|
| TOOTH 25 TL |
| HOLDER |
| LOCKING PIN |
| RUBBERBLOCK |

## TOOTH U 20 S

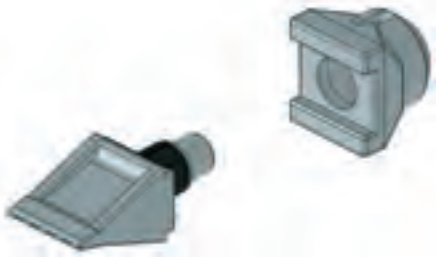
| DESCRIPTION |
|---|
| TOOTH U20S |
| HOLDER |

## 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

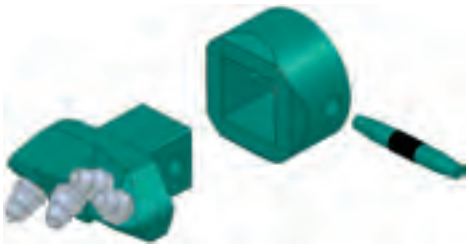
| DESCRIPTION |
|---|
| BETEK 30/38 |
| HOLDER P |

# 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 |

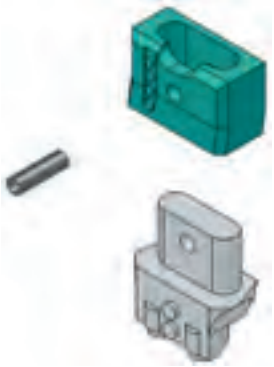
## CASING DRIVE PIN

| 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<br>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<br>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.

02/2013

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