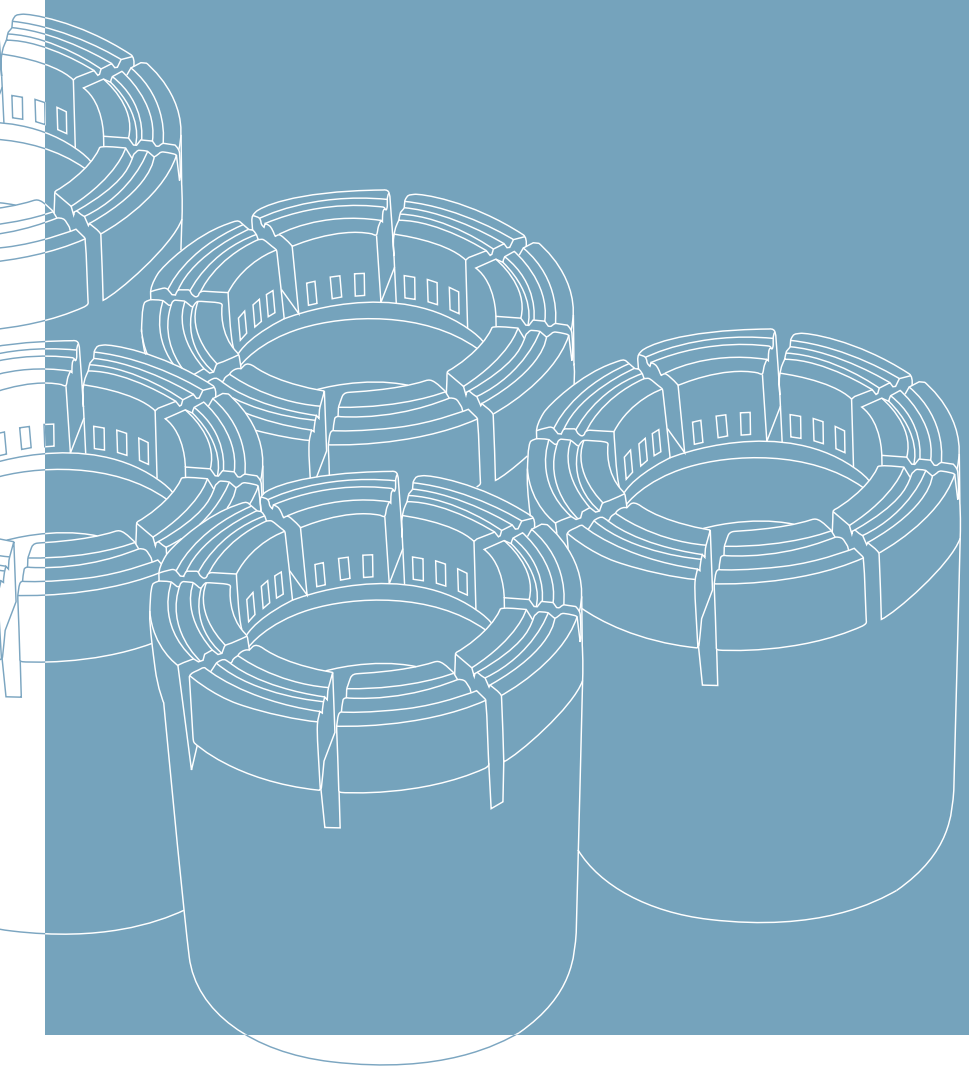
# TAE SUNG Co.

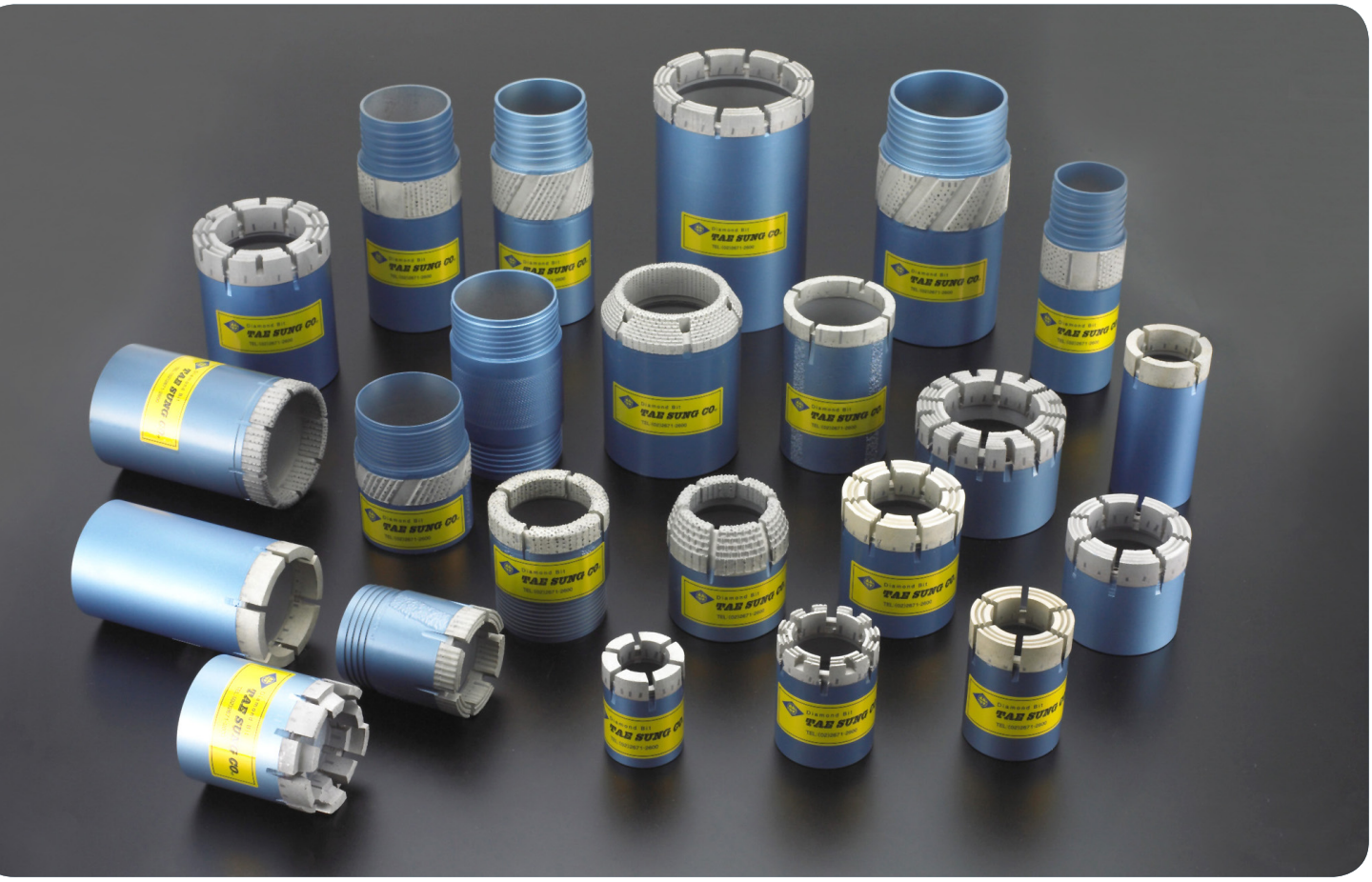
www.taesungdia.com

## Global Product Catalogue
## TAE SUNG BITS & ACCESSORIES

+ Impregnated Diamond Core Bits
+ Reaming Shells
+ Surface Set Diamond Core Bits
+ Impregnated Diamond Casing Shoe
+ PDC Bit & Tricone Bits
+ Tae sung Core Barrels
+ Drill Rods & Casing Pipe
+ Drilling Accessories
+ Drilling Rigs



TAE SUNG




# CONTENTS

# CEO'S MESSAGE

Our company is the only manufacturer of the drilling equipment in Korea who is specialized in producing equipment and materials that are needed in the boring works of exploration and civil engineering construction in domestic and overseas markets.
Currently we are supplying our products to customers at reasonable prices through the localization of the market that has been occupied by the imported products based on our know-how accumulated for a long time and endless research and development.
We are also a small but strong company who is spurring to develop overseas markets equipped with international competitiveness.
At present, we are positioned as the best company not only in domestic market but also in whole Asian regions among the self-manufacturing companies, and all the staff are trying their best together in order to become a major player in the global market.
Taesung Co. will keep the immovable top position in the boring works of construction and civil engineering in domestic market.
It is said that the winner will be determined by the knowledge and resources in the future.
In parallel with this global trend, Taesung Co. will make endless efforts as a professional manufacturer of the exploring equipment of natural resources.

Thank you.

# COMPANY HISTORY

## 1980 ~ 1999 Initial Stage

| | | |
|---|---|---|
| 1980 | 03 | Foundation of Taesung Co. (President : Jong Ho, Kim) |
| 1986 | 03 | Developed NXD3 Core barrels, NXD3 Imp Core bit & Reaming shells |
| 1990 | 05 | Developed core barrels of wireline S series |
| 1992 | 02 | Started supplying to Korea Mining Industry Promotion Agency<br>(Current Korea Resources Corporation) |
| 1993 | 01 | Continuous quality improvement and development of new products |

## 2000 ~ 2009 Development Stage

| | | |
|---|---|---|
| 2003 | 12 | Moved to current Gwangmyeong-city due to expansion of business<br>(761-3, Noonsa-dong, Gwangmyeong-city, Gyunggi-do) |
| 2005 | 03 | Current president Mr. Young Tae, Kim inaugurated (Management by 2nd generation started) |
| 2005 | 03 | Developed NS3 Core barrels, Core bit, Reaming shells of Korean type |
| 2006 | 09 | Acquired ISO 9001 |
| 2006 | 11 | Selected as an internet frontier company of Gyunggi-do |
| 2007 | 04 | Selected as an industrial family company (~ 2011.4) |
| 2007 | 05 | Selected as a venture company |
| 2007 | 07 | Technology innovation and development project of small and medium company<br>(Integrated multi-tube sampling equipment, completed in 2008.8) |
| 2007 | 08 | Started export to Overseas market (Singapore) |
| 2007 | 12 | Acquired a domestic patent for the core direction measuring equipment of the drilling machine |
| 2008 | 05 | Awarded by the head of the Gyunggi Regional small and medium business agency<br>(Gyunggi Regional small and medium business agency, Il Hwan, OH) |
| 2008 | 08 | Selected as a promising small and medium business by gyunggi-do (~ 2013.8 for 5 years) |
| 2008 | 11 | Purchased land for the factory and office of current Taesung Co. |
| 2008 | 12 | Awarded grand prize of the 13th export innovation small and medium company<br>(Governor of Gyunggi-do, Moon Soo, Kim)<br>Selected as an INNO-BIZ company<br>Acquired ISO 14001 |

## 2010 ~ 2012 Growth Stage

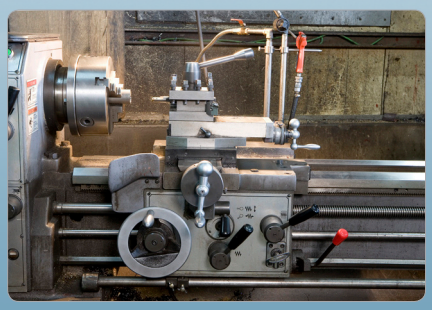
| | | |
|---|---|---|
| 2010 | 04 | Selected as a KOTRA guarantee brand company |
| 2010 | 06 | Selected as a member of 500-500 program for the promotion of small and medium companies |
| 2011 | 04 | Started export to Japan |
| 2012 | 02 | Converted into an incorporated company |

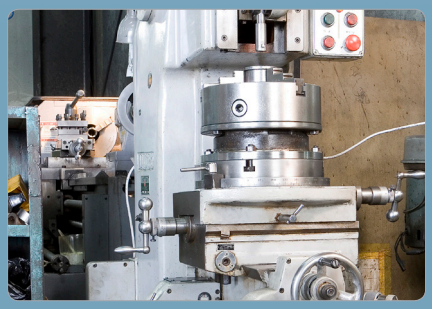
# MACHINES & EQUIPMENTS










# Impregnated Diamond Core Bit

**SIZE** AX, BX, NX, AQ, BS, NS, NS2, NS3, HS, HS3, PS, PS3, T76, T56, T46, T6116, T6101, T6131, T2101, NMLC, HMLC

## USAGE

Bits are attached to the foremost part of the Core barrels to be used in direct drilling of the ground, and play the most important role among the equipments that are used in drilling. There are many types of bits classified and used according to the purpose of drilling or ground conditions, and the bits are also different in their material, shape, and performance.
So, it is economical and highly effective in drilling works to use the proper bits after full understanding of the characteristics of each bit. Diamond Core Bit is used for the drilling of hard rocks, and Metal Bit is normally used for the ground or soft rocks. Impregnated Core Bit is normally used in case Core is needed, while Non Core Bit is used if Core is not needed. However the drilling efficiency and economic feasibility increase if Core Bit is used while Core is not needed.

### ▶ Features of Impregnated Diamond Core Bits of Taesung

1. Reached up to the global quality level.
2. In Korea, rocks are generally very strong. Bits of Taesung Co. have an excellent drilling rate. at strong rocks as they have been adapted to such hard and strong rocks.
3. Firmly positioned as a leading company in domestic market.
4. Bits can be diversely produced in any sizes and specifications that are needed.
5. Drilling Speed of the Impregnated Core Bit is very excellent comparing with those of other companies.
6. Premium product that Synthetic Diamond Powder, Metal Powder, and Shank of top quality are used.

### ▶ The hardness of Matrix is the most important factor in selecting bits.

1. Large size diamond with the strong matrix is used for soft rocks.
2. Medium size diamond with the matrix of medium strength is used for the rocks of medium strength.
3. Small size diamond with soft matrix is used for strong rocks.

## Impregnated Diamond Core Bit

| Matrix | T1, T2 | T3, T4 | T5 ~ T8 | T9 ~ T11 |
|---|---|---|---|---|
| Section/Kind of Rocks | Soft Rock | Medium | Hard Rock | Very Hard & Ultra Hard Rock |
| Diamond Mesh | Large ◄ | | | ► Small |
| Matrix Hardness | Hard ◄ | | | ► Soft |

## Impregnated Core Bit Matrix Selection Chart

| Rock Hardness | | Rock Characteristics | Type of Rock (Example) | Taesung (T-Series) |
|---|---|---|---|---|
| DCDMA | MOHS | | | |
| 7 | 8-9 | Extremely Hard, Unbroken Fine Grained Formation, Non-abrasive | Quartz<br>Chert<br>Jasper | T-9, 10 |
| 7 | 8 | Very Hard, Unbroken Fine Grained Formation, Non-abrasive | Quartzite<br>Taconites<br>Diories | T-8, 9 |
| 5 | 7 | Hard, Fine to Medium Grained Unbroken Formation | Granite<br>Andesite<br>Gneiss<br>Schist<br>Basalt | T-7, 8, 9 |
| 4 | 6 | Moderately Abrasive, Medium to Coarse Grained Formations Solid to Slightly Fractured | Pegmatite<br>Monzanite<br>Gabro | T-5, 6, 7, |
| 3 | 5 | Abrasive, Medium to Coarse Grained Formations, Broken | Quartzite<br>Conglomerate<br>Sandstone<br>Rhyloite | T-3, 4 |
| 4 | 4-5 | Abrasive, Medium to Coarse Grained Formations, Broken | Sandstones<br>Pegmatite<br>Taconites<br>Quartzite | T-2, 3, |
| 1 | 4 | Extremely Abrasive, Medium to Coarse Grained Highly Fractured, Gaulty and Sheared Ground | Sandstones<br>Quartzite<br>Limestone | T-1, 2 |

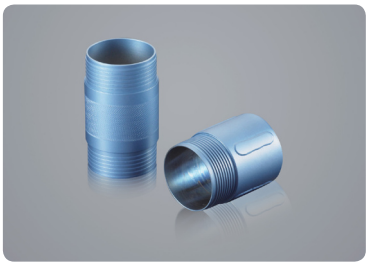
# Reaming Shells

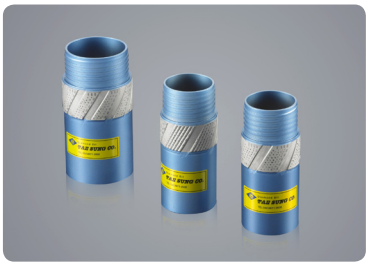
**SIZE** AX, NX, NXD3, AS, BS, NS, NS3, HS, PS, T Series

## USAGE

Diamond Reaming Shell is connected with a Bit to be used, and the drilling by Bit and grinding of side surface can be done simultaneously, but the drilled hole should be kept not smaller than the diameter of the Bit (Reaming).
It should be used to prevent early wear and tear of the outer diameter of the Bit, and also to prevent vibration and deformation of the hole walls.
As shown in the figures, it has a cylindrical shape, with diamond particles attached at outside diameter and touchable screws at both ends.
Reaming shell is produced with the outside diameter larger than that of the Bit.





### ▶ Features

There are 2 types of Taesung's Reaming Shell, one is for general rocks and the other is screw type for strong rocks.
Taesung's Reaming Shell has an excellent life span and reaming ability as high quality shank and natural diamond are used in producing it.

# Surface Set Diamond Core Bit

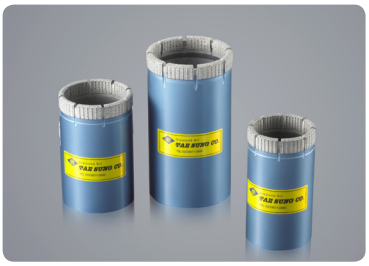
**SIZE** BS, NS, HS, PS, T-Series

## USAGE

It should be used at time of drilling the soft ground.


## TYPE

Multi Type (3 Steps, 5 Steps, 7 Steps), Round Type



### ▶ Features

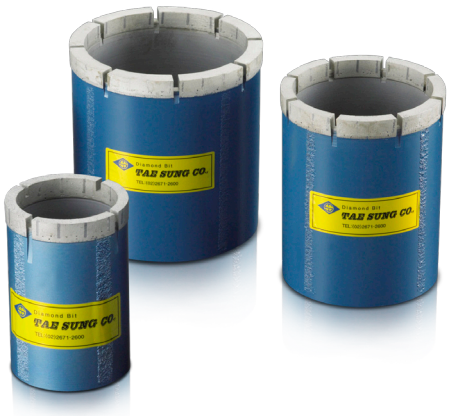
Life span of the Taesung's Surface Set Core Bit is much superior compared with other companies' products, as it is made of natural diamond of high quality.

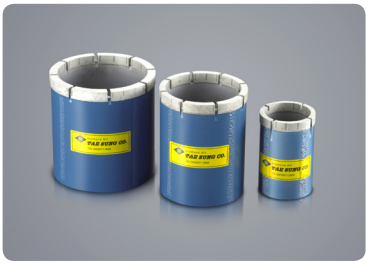
# Impregnated Diamond Casing Shoe

**SIZE** BW, NW, HW, PW

## USAGE

1. Impregnated Diamond Casing Shoe : It should be used for the drilling of Soil or Soft Ground, and it should be connected with Casing Pipe and digged through the hole that can be collapsed anytime.
During the works, it should be buried under the ground surface.
2. Impregnated Diamond Casing Shoe Bit : It is used for the drilling of soft ground with much gravel.



### ▶ Features

Taesung's Impregnated Casing Shoe has an excellent quality as it is made of Synthetic Diamond of top quality and proper Matrix.

# PDC Non-Core Bits

# TRICONE bits

# Taesung Core Barrels

**SIZE** AX, BX, NX, NXD3, AS, BS, NS, NS3, HS, HS3, PS, PS3, T76, T56

## USAGE

It is a device to take the cores drilled by the core bit, and made of pipe.
Core barrels are mostly used to take the core, but sometimes they are used to increase the drilling efficiency even in case core is not needed. There are several kinds of Core Barrels in accordance with the usage;

### 1. Single Tube Core Barrels : AX, BX, NX

These are generally used to increase the collection rate of cores at an even ground.
They cannot be used at the ground that can be easily collapsed or eroded by the circulation water.

### 2. Double Tube Core Barrels : AX, BX, NX, NXD3, T76, T56

These are made of duble tubes (Outer Tube, Inner Tube), and circulation water passes through the gap between the tubes and is not touched by the collected cores. They are not suitable to be used for the geological strata where core collection is difficult due to uneven strata with many cracks, coal beds, and soft layers. Also, they play a role to increase the core collection rate.

### 3. Triple Tube Core Barrels : NS3, HS3, PS3

Triple tube core barrels have almost same structure with Double tube core barrels, but a tube for the core case are built at inside the Inner tube. The Inner tube can be easily removed from a Core case tube along with the cores taken into the Inner tube.
It is a product that is made to collect the fresh cores without disruptions from the weak grounds or broken layers where core collection is difficult with normal Double core barrels.

### 4. Wire Line Core Barrels : BS, NS, HS, PS Wire line Core Barrels

These equipment are used to hoist the rods during the drilling and core collection works by the bits of Core barrels or at time of bit changing. The bigger is the depth of the hoisting works, the more becomes the number of the rods and the weight of the rods as well as the cost, time, and labor of works. In order to solve the problems, Wire line core barrels have the Inner tube that is built in the Outer tube, and hoist the Inner tube onto the ground within the hole by use of wire rope. If you use this Core barrel, the number of hoisting of the Rods is reduced, and this is the most reasonable Core barrel especially for the drilling of the cores from the deep layers.

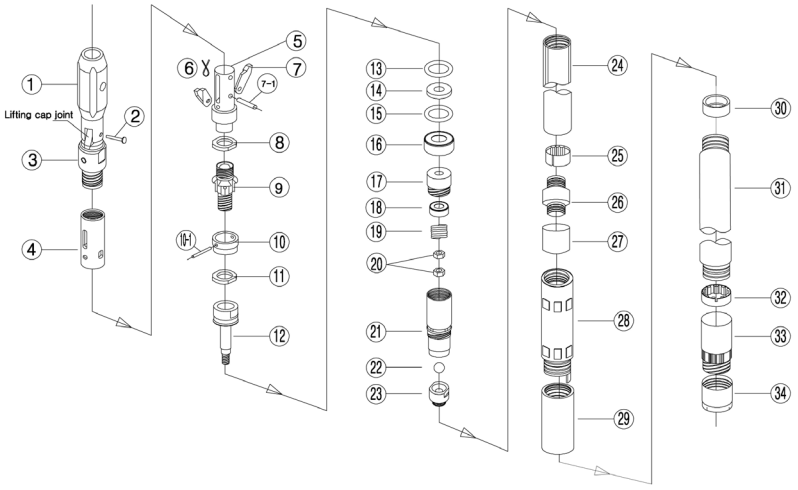
- You may not hoist the drilling equipment except when you replace the Bits, and the drilling time is increased as the hoisting time and labor of the drilling equipment are saved.
- The generations of irregular vibration of rods are less, and the fear of collapsing of the hole as well as the accident of detained rods is also less.
- Structure : Outer Tube, Inner Tube, Over Shot, Wire Line Drill Rods, Hoisting Plugs

## ▶ Features

Taesung's Core Barrels are made of raw materials of best quality appropriate for the drilling, so they are excellent in life span and quality and currently being exported to various countries such as Singapore, Mongolia, Uzbekistan, Indonesia, etc...

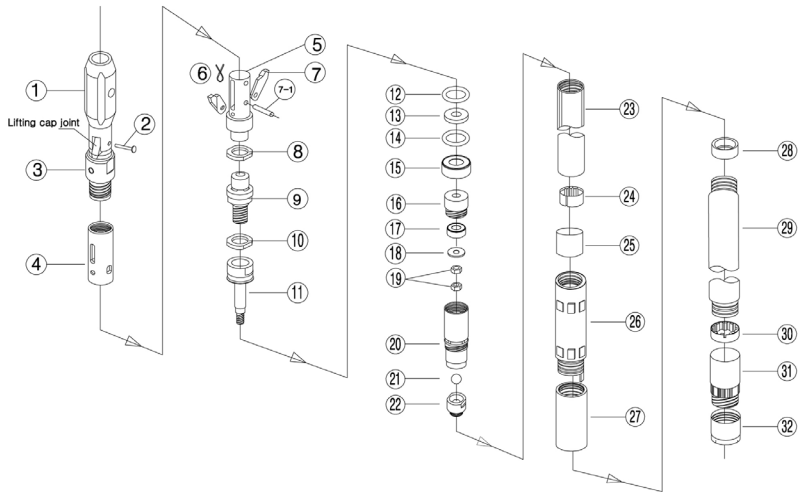
# Taesung Core Barrels

## HS Core Barrel Drawing




| No | Description | No | Description |
|---|---|---|---|
| 1 | Lifting head | 17 | Spindle Cap |
| 2 | Head pin | 18 | Hanger cover bearing |
| 3 | Lifting cap | 19 | Spring |
| 4 | Holder case | 20 | Jam nut |
| 5 | Holder | 21 | Inner Tube Cap |
| 6 | Latch spring | 22 | Steel Ball |
| 7 | Latch | 23 | Ball Seed |
| 7-1 | Latch pin | 24 | Inner Tube |
| 8 | Lock Nut | 25 | Core Lifter |
| 9 | Conector | 26 | Lifer case connecting cap |
| 10 | Landing Sholder | 27 | Core Lifter Case |
| 10-1 | Landing sholder pin | 28 | Guide coupling |
| 11 | Lock Nut | 29 | guide Pipe |
| 12 | Spindle | 30 | Landing ring |
| 13 | Washer | 31 | outer tube |
| 14 | Shut off valve | 32 | Stabilizer |
| 15 | Washer | 33 | Reaming shells |
| 16 | Thust cover bearing | 34 | Impregnated core bit |

## NS Core Barrel Drawing




| No | Description | No | Description |
|---|---|---|---|
| 1 | Lifting head | 17 | Washer |
| 2 | Head pin | 18 | Jam nut |
| 3 | Lifting cap | 19 | Inner Tube Cap |
| 4 | Holder case | 20 | Steel Ball |
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| 12 | Shut off valve | 30 | Reaming shells |
| 13 | Washer | 31 | Impregnated core bit |
| 14 | Thust cover bearing | 32 | Stabilizer |
| 15 | Spindle Cap | 33 | Reaming shells |
| 16 | Hanger cover bearing | 34 | Impregnated core bit |

# Drill Rods & Casing Pipe

**SIZE** B, N, NS3(KOREA), H, P, AW, BW, NW, HW, HWT

## USAGE

### 1. Drill Rods

It is drilling equipment with Core Barrel and Bit attached at its foremost part and is maintained by the Chuck of the Drill Rig. It's main role is conveying the rotation and pressure generated by the drilling machine and making the drilling water reach to the Bit, and also conveying the rapid cooling or slime.

### Taesung's Drill Rods Specifications

| Item | Length | O.D | I.D. | Remarks |
|---|---|---|---|---|
| P DRILL RODS | 3000mm | Min. 114.3 mm<br>Max. 114.5 mm | Min. 101.6 mm<br>Max. 101.80 mm | |
| H DRILL RODS | 3000mm | Min. 88.90 mm<br>Max. 89.15 mm | Min. 77.8 mm<br>Max. 78.0 mm | Pin & Box<br>(heat treatment) |
| N DRILL RODS | 3000mm | Min. 69.85 mm<br>Max. 70.05 mm | Min. 60.12 mm<br>Max. 60.33 mm | |
| B DRILL RODS | 3000mm | Min. 55.6 mm<br>Min. 55.8 mm | Min. 46.0 mm<br>Min. 46.2 mm | |

## Other specs

- Min. Tensile Strength : 900 N/mm$^2$
- Min. Yield Stress : 800 N/mm$^2$
- Min. Extension : 14%
- Min. Surface Hardness : HRC 30 ~ 35
- Seamless, Cold drawing
- Roundness : 0.2 Max Standard
- Straightness : 0.8/1000mm (Standard)
- PIN & BOX thread - Heat treated

## Features

Taesung's drill rods, as shown above, are superior products which meet the standards of drill rods for boring by 100%, using the raw materials of best quality suitable for drilling.

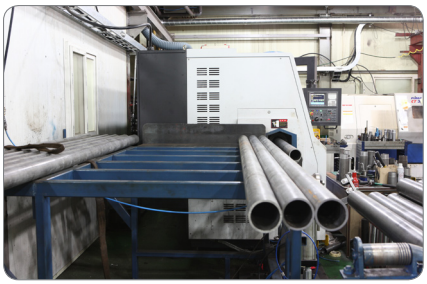
## 2. Casing Pipe

Casing pipe is used to maintain the hole wall to the desired depth during the drilling, and several casing pipes are inserted to protect the internal space of the hole when you drill to the desired depth where the ground condition is not good (collapse layer).

| Size | OD (mm) | ID (mm) | Weight (Kg/m³) | Threads (per inch) | Content (L/100m) |
|---|---|---|---|---|---|
| RW | 36.5 | 30.2 | 8.0 | 5 | 70.9 |
| EW | 46.0 | 38.1 | 12.5 | 4 | 113.8 |
| AW | 57.1 | 48.4 | 17.0 | 4 | 184.1 |
| BW | 73.0 | 60.3 | 31.3 | 4 | 285.8 |
| NW | 88.9 | 76.2 | 38.4 | 4 | 455.7 |
| HW | 114.3 | 101.6 | 50.5 | 4 | 810.4 |
| PW | 139.7 | 127.0 | 64.3 | 3 | 1266.6 |



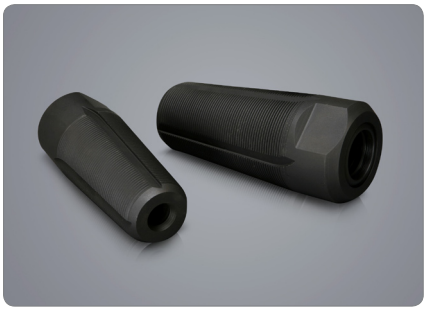


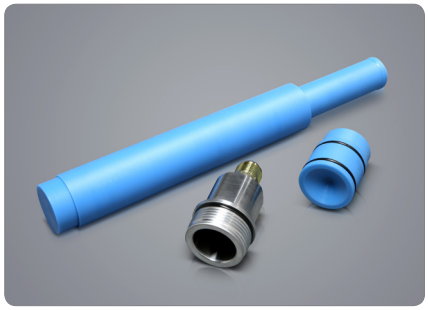
# Drilling Accessories

Water Swivel

Hoisting Plugs



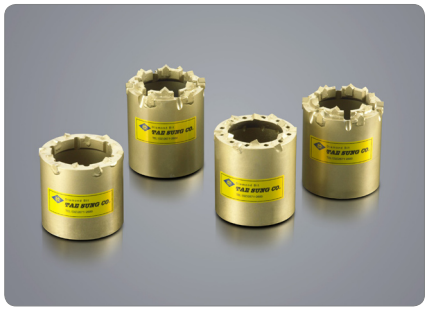
Fishing Tools



Pump Coupling Core Recovery Set

SPT Sampler

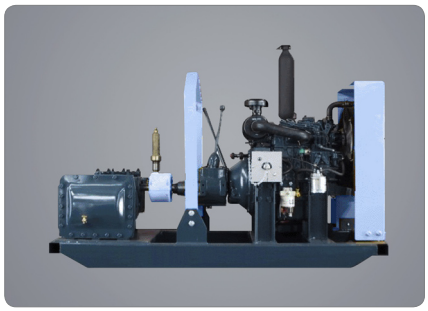
Full Grip Wrench



TC Metal Core bit

Weathering Soil & Rock TC Metal Core bit

Wire



Water Pump - 1

Water Pump - 2

Water Tank

# Drilling Rigs

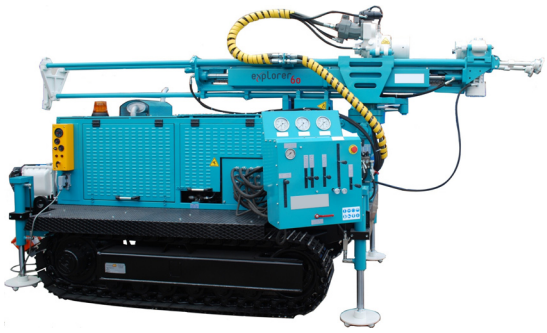
## Ground Drilling Machine

### Explorer 30

| | | | |
|---|---|---|---|
| Drilling capacity | Drill rods size | AW | AWL |
| | Approx Drilling Depth | 100m | 120m |
| Feed Frame | Feed Length | 850mm | |
| | Feeding and Pulling Force | 20kN, 15kN | |
| | Feed Speed | 0.8m/s, 1.0m/s | |
| Rotation Unit | Spindle Speed Range | 550-2200 rpm | |
| | Maximum Torque | 230 Nm | |
| Power Unit | | Electrical | Diesel |
| Engine | | 15kW-22kW | 25kW-32kW |
| Main pump | Flow | 30lt / min | 30lt / min |
| | Pressure | 260 bar | 260 bar |
| Service Pump | Flow | 6lt / min | 6lt / min |
| | Pressure | 210 bar | 210 bar |

### Explorer 60

| | | | | | |
|---|---|---|---|---|---|
| Drilling capacity | Drill rods size | AWL | BWL | NWL | HWL |
| | Approx Drilling Depth | 750m | 500m | 400m | 150m |
| Feed Frame | Feed Length | 3300mm, 1800mm, 850mm | | | |
| | Feeding and Pulling Force | 64kN | | | |
| | Feed Speed Low/ High | 0.5 m/s, 1.0 m/s | | | |
| Rotation Unit | Spindle Speed Range | 50 - 1100 rpm | | | |
| | Maximum Torque | Optional 1336Nm, 1987Nm | | | |
| Rod Holder | Maximum Rod size | 114mm | | | |
| | Holding Force | 22 kN, 33 kN ( with TC inserts) | | | |
| Power Unit | Power Unit | Electrical | | | Diesel |
| Engine | Engine | 45 kW- 55kW | | | 70 kW |
| Main pump | Flow | 70 lt / min | | | 70 lt / min |
| | Pressure | 260 bar | | | 260 bar |
| Service Pump 1 | Flow | 35 lt / min | | | 35 lt / min |
| | Pressure | 210 bar | | | 210 bar |
| Service Pump 2 | Flow | 11 lt / min | | | 11 lt / min |
| | Pressure | 210 bar | | | 210 bar |



## Ground Drilling Machine

# Rocker 34

| | | |
|---|---|---|
| General Informations | Engine | 47 kW |
| | Weight | 2900 kg |
| Pulling System : Hydraulic Engine, Frame and Crawler | | |
| Feed Frame | Length | 5,00 m |
| | Stroke | 4,10 m |
| | Push Force | 0 - 25 kN |
| | Pull Force | 50 kN |
| Drilling Details | Drilling speed | 0 - 120 cm / min |
| | Drilling diameter | 2,5" - 4,0" |
| | Drilling Depth | 50 m |
| Rotation Unit | Drive Engine | 75 rpm |
| | Torque | 1000 Nm |

# VDD5 Wagon Drill

| | | |
|---|---|---|
| General Informations | Engine | 38 kW |
| | Weight | 2180 kg |
| Feed Frame | Length | 5,00 m |
| | Stroke | 4,10 m |
| | Push Force | 0 - 2.5 kN |
| | Pull Force | 50 kN |
| Drilling Details | Drilling speed | 0 - 120 cm / min |
| | Drilling diameter | 2,5" - 4,0" |
| Rotation Unit | Drive Engine | 75 rpm |
| | Torque | 1000 Nm |
| Oil Cooler | | 2024K - 0,110 kW - 12v |
| Fuel Tank Capacity | | 70 lt |
| Fuel Tank Capacity | | 250 lt |

# Drilling Rigs

## Pathfinder 10 Multi Purpose

### Multipurpose drill rig

| Drilling capacity | | | | |
|---|---|---|---|---|
| Drill Rod Size | BWL | NWL | HWL | PWL |
| Depth(m) | 1350 | 1000 | 600 | 350 |

These depth values are theoretical values.
Drilling depth may vary according to ground conditions, equipment drilling angle, etc.

| Main Hoist | | | |
|---|---|---|---|
| Wireline Pull Capacity | 88 kN | 20lb | * Free cylinder |
| Wire Speed | 25 m / min | 83 ft / min | * Free cylinder |
| Wire Length | 59m x 16mm | 199ft x 10/ 16in | |

| Wireline | Line Pull | | Rope Speed | |
|---|---|---|---|---|
| Capacity | 1000 m | | | |
| Bare Drum | 3.7kN | 832 lb | 314m/min | 1030 ft / min |
| Full Drum | 1kN | 225 lb | 550m/min | 1805 ft / min |

| Mast and Feed System | |
|---|---|
| Feed Length | 3. 4 m |
| Feed Speed | Fast and slow with variable control |
| Feeding and Pulling Force | 63 kN - 160 kN |
| Drilling Angle | 45- 90 degrees |
| Rod Pull Length | 7m |

| Power Unit | |
|---|---|
| Power | 155 kW / 208 Hp |
| Revolution | 2300 rpm |
| Engine Type | Diesel |
| Cooler | Air |

| Hydraulic System | | |
|---|---|---|
| First Pump | 280 bar | 2601t / min |
| Second Pump | 210 bar | 85 lt / min |
| Auxiliary Pump | 200 bar | 45 lt / min |
| Hydraulic Oil Cooler | Air | |

## Pathfinder 10 multi purpose

| Power Unit | | | |
|---|---|---|---|
| Power Hidrolik Motor | Hydraulic Engine - Variable speed / reversible | | |
| Spindle Shaft Diometer | 119 mm | | • Inner Diameter |
| Spindle Speed | 1 | | 2 |
| | Ratio | 6,63:1 | 2,62:1 |
| | Speed (rpm) | 218 - 603 | 552-1200 |
| | Torque (Nm) | 3204 - 1158 | 1234 - 486 |
| Range Selection | Manual control from gearbox | | |
| Gearbox | Hydraulic sliding | | |

| Chuck Jaw Specifications | | |
|---|---|---|
| Type | Hydraulic operated, spring closed | |
| Maximum Inside Diameter | 119 mm | 4,68 in |
| Holding Capacity | 18000 kg | 39600lb |

| Rod Holder Jaw Specifci ations | | |
|---|---|---|
| Type | Hydraulically operated, closed by gas pressure | |
| Maximum Inside Diameter | 169 mm | 6.65 in |
| Holding Capacity | 15300 kg | 34395lb |

| Support Jacks | |
|---|---|
| Movemen Unit | Regular skid frame, wheel on truck and hydraulic crawler |
| Leverages of Jacks | 4 units of hydraulic leverages |
| Cylinder Stroke | 450mm |

| Dimensions | Movement Position | Dnlling Position |
|---|---|---|
| Length | 6300 mm | 5300 mm |
| Width | 2400 mm | 2400 mm |
| Height | 2650 mm | 9450 mm |
| Weight | 6900 kg | With Mud Pump and Rod Holder Jaw |

| Power Unit | | |
|---|---|---|
| Mast in Two Sections | Water Flow Meter | |
| Mast Pulley | Hydraulic Mud Pump, TEK WH140 | |
| Fuel Tank 145ft | Maximum Flow | Maximum Pressure |
| Fuel Filter | 140 lt / min | 70 bar |
| RPM Meter | 70 bar | 1015 psi |

* All weights and dimensions are approximations and may be changed.

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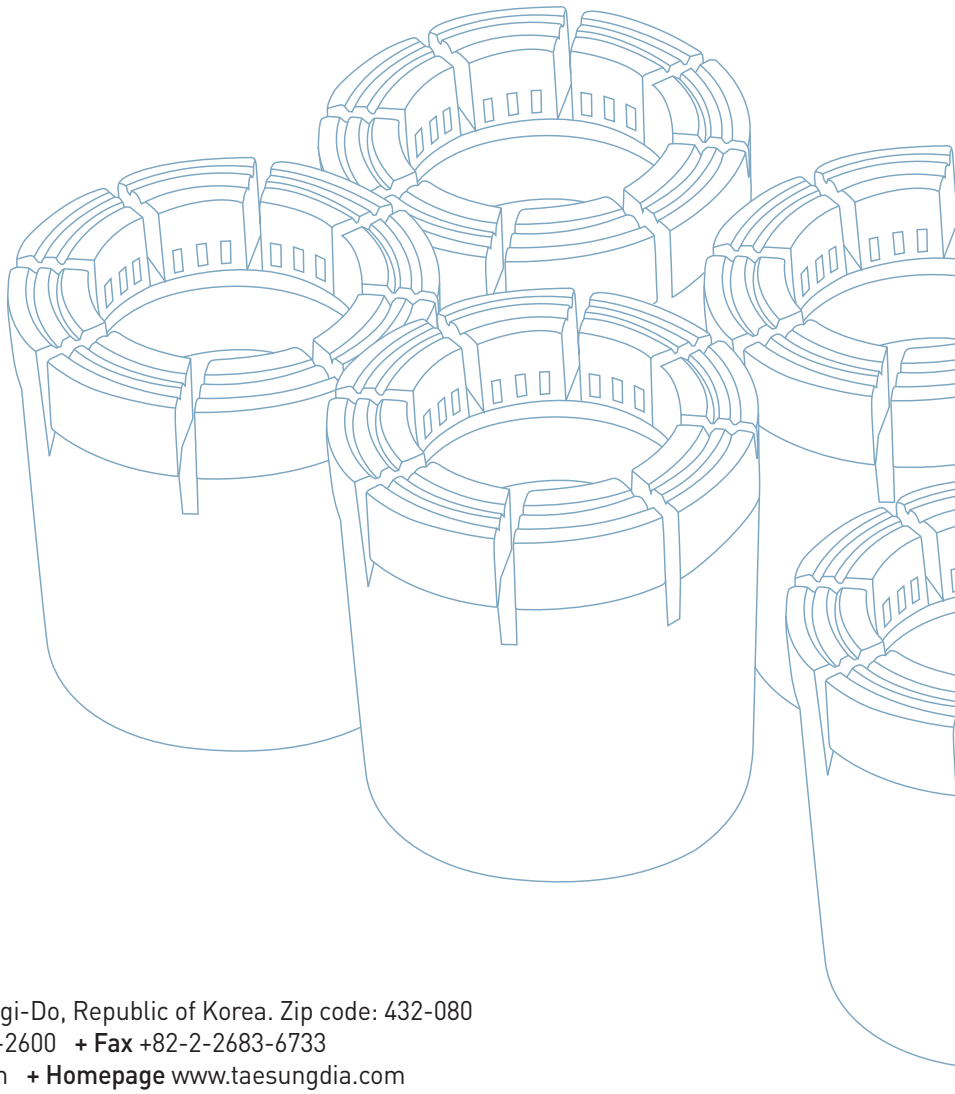

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