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Basic Equipment for Rock Core Investigation of Rock beds and Ground beds

The **equipment manufactured and supplied by GemTec** have been upgraded in terms of automation and durability with consideration for safety and working conditions, allowing convenient use in the laboratory without inconvenience.

- Some functions are **automated**, which not only improves **safety** and **convenience** during sample preparation, but also **minimizes dust and noise**, enabling grinding, cutting, and drilling work close to the dimensions required for specimen preparation.
- Cooling water is used during specimen preparation to minimize rust generation during and after the use of diamond saws, wheels, and discs. In addition, **stainless steel materials** are used for the machine body, making cleaning easy after use and eliminating concerns about corrosion.
- **Durability** has also been **improved**. Excluding consumable parts, the service life of previously manufactured equipment was approximately 5–10 years, whereas the current equipment has an extended service life of 15 years, or more than 20 years with proper maintenance after use.
- Since the upper cover provides a sealed structure, the laboratory is **protected from dust**. In addition, the diamond saws are designed to minimize noise generation, allowing **quiet cutting operations** even inside indoor laboratories.
- Among the equipment listed below:
  - ▶ **Ser. No.1 Auto. Core Drilling Machine**:
    After fixing the block sample, the machine automatically performs core drilling and then returns to its original position.
  - ▶ **Ser. No.4 Core Cutting Machine**:
    The machine automatically cuts up to four samples (54 mm) fixed on the block and then returns to the cutting start position before **stopping automatically**. In addition, because the vertical and horizontal alignment after cutting is highly accurate, there is no need to separately grind the horizontal surface during compressive strength testing, thereby **reducing test preparation time**.
  - ▶ **Ser. No.5 Rock Core Precision Machine**:
    The rock core is fixed to the block holder, and the machine automatically moves left-right and forward-backward. The vertical grinding dimension is displayed digitally, enabling precise grinding down to 5/1000 mm increments.
  - ▶ **Ser. No.7 CERCHAR Abrasiveness Index Tester**:
    This equipment is manufactured in South Korea in accordance with the revised ASTM D7625 (2022 edition).
    (The revised testing standards and procedures will be provided during equipment installation.)

Ser. No.	Basic Equipment for Rock Core Investigation of Rock beds and Ground beds (Title of Machine)	Model No.
1.	Auto. Core Drilling Machine	RDC - A1
2.	Tilting Type Core Drilling	RDC - C
3.	Core Drilling Machine	RDC - A
4.	Core Cutting Machine	BSW - 20
5.	Rock Core Precision Machine	RCP - 11
6.	Auto. Core Precision Machine	RCP - 12
7.	Cerchar Abrasiveness Index Tester	RCAT - 1

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Auto. Core Drilling Machine

■ Characteristics

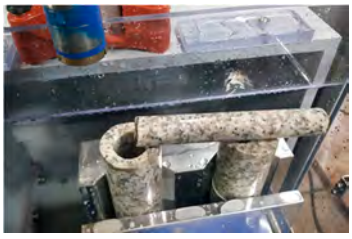
- For core drilling of rock, graphite rods, or concrete
- Equipped with a core drill attachment
- Rock, graphite rods, or concrete blocks are fixed in a vise and machined by moving left/right and forward/backward, providing high working efficiency
- Cooling water is supplied using a self-circulating pump, with a separate cooling tank attached
- Rock-specific bits are used for coring operations
- Equipped with wheels for easy movement depending on the workplace location
- Fitted with a door to prevent cooling water splashing during operation
- Protective bellows cover against sludge
- Automatically returns to the original position after sample drilling is completed
- Vertical position can be adjusted as desired
- A clamping vise is available for irreguThis equipment was manufactured domestically in accordance with the revised ASTM D7625 (2022 edition).larly shaped samples (optional upon prior consultation depending on the sample shape)

■ Specification

Model		RDC – A1
Size	mm	700(W)x800(D)x1700
Power		60Hz, 220V, 2P, 1600W
Vise	mm	V-Block 2 Ea (50ϕ) or Material Fixing Vise
rpm	rpm	650~1300
Vise Left/Right Movement	mm	150
Vise Front/Back Movement	mm	100
Cooling Water Tank	mm	450x350x300
Cooling Water Circ. Pump		220V, 7W, 1.7m, 800ℓ/hr

■ Parts

- 1″-Core bit: 1 set
  ※ Core drill bit: Option
- Movable cooling pump set: 1 set



< Rock Core Drilling >

< Graphite Core Drilling>

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Tilting Type Core Drilling

■ Characteristics

- Core drilling a rock or concrete
- Core drilling position adjustable (left/right and front/back)
- Core drilling tilting angle adjustable (left/right)
- Four vises for the material fixing from left/right and front/back sides
- Automatic 3-stage down-speed control
- Speed-controllable depending on the material size
- Electric motor driven for vertical movement of main shaft

<Left/right angle adjustment >

<Angle adjust. after fixing>

■ Specification

Model			RDC-C
Size Work Base	mm		810(W)x1800(D)x2300(H) 2500(W)X2500(D)X3500(H)
Power			380V, 3P, 60Hz
Motor			2.2kW(Main), 0.75kW(Vertical),
Vise Size	Block		500x500x500
Vise Left/Right Movement	mm		500
Vise Front/Back Movement	mm		500
Core Vertical Movement	mm		700
Core Bit Automatic Movement Speed		mm per rpm	0.1~0.25
Core Bit Speed Settings	Steps		12
Vise Left/Right Angle			45 Degree
Core Bit Drilling Size	mm		10~150

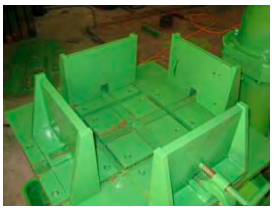
■ Parts

- Nx Core Bit: 54x500 mm
- Cooling unit

<Option>

Other than NX Core Bit: 10~150mm

<L/R angle adjustment, 45 deg.>



<Fixing vise>

<Fixing vise>

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Core Drilling Machine

■ Characteristics

- For core sampling of rock or concrete
- Attached with a core bit drill
- Good working efficiency because of operability in the left/right directions and the front/back directions under rock or concrete fixing by vise.
- Cooling water circulation by a cooling water pump attached at the outside of machine & recirculation of cooling water
- Rock core sampling bit
- Convenient movement by wheels
- Cover for prevention of cooling water scattering
- Bellows type cover for protection from sludge

■ Specification

Model	RDC - A
Size mm	700(800)x900x1200(1750)
Vise mm	400(460)x300(280)x250(220)
Vise Left/Right Movement mm	300
Vise Front/Back Movement mm	300
Cooling Water Tank mm	450x350x300
Power	220V, 2P

■ Parts

- Core bit set: NX-core bit: 1 set
  ※ Core drill bit: Option
- Portable cooling pump set: 1 set

<Rock core drilling >

<Rock NX,BX,25 mm Core Bit x 300mm>

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Core Cutting Machine

■ Characteristics

KCs Korea Certificate Safety

- Rock (core) cutter
- Cutting NX core with regular thickness
- Automatic supply of cooling water after NX core fixing by vise
- Automatic stop after cutting
- Automatic return to the start position after cutting
- Control of vise movement speed
- Cooling water circulation by a cooling water pump attached at the outside of machine
- Transverse or longitudinal direction cutting of NX core and position control of NX core
- Wheel-mounted type
- Bellows type cover for protection from sludge & noise tightening

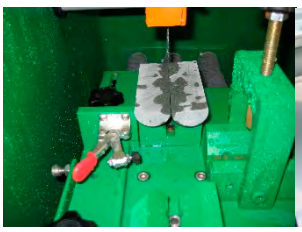
■ Specification

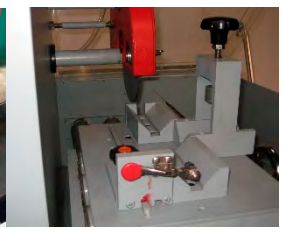
Model	BSW - 20
Size mm	600(950)x950x800(1200)
Motor	1HP, 220V(380V, 3P), 2P
Shaft	25.4mm (1")
Vise mm	150x80x250
rpm	2500 rpm
Diamond Saw	10"(8")
Vise Speed Motor	25W, 220V, S8125 GT
Vise Speed Motor Inverter	FR 2520.0.2K

■ Parts

- Diamond saw blade: 250mm, 1 ea
- Cooling water tank: 1 set <Option>
- Simultaneous cutting of four(4) rock cores







<Attachment of blocks for X or Y direction cutting>

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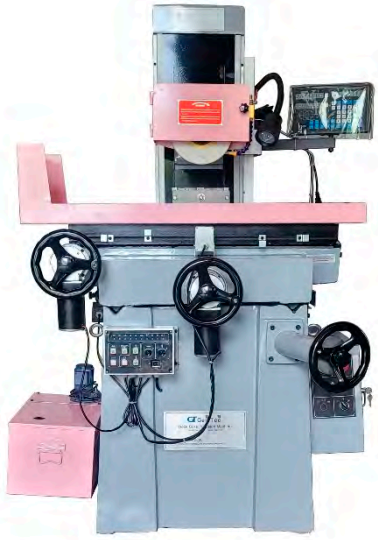
Government Procurement Id No.: 41101799
Commodity Id No.: 21511257

Rock Core Precision Machine



■ Characteristics

- Grinding a rock core (NX core) precisely and horizontally
- Equipped with a digital gauge (1/1000 mm scale)
- Grinding the rock core after attaching by magnetic
- Two(2) NX core block holders
- Manual vertical movement & semi-automatic lateral movement
- Cooling water supply for prevention of core deflection
- Cooling water circulation by a cooling water pump attached at the outside of machine & recirculation of cooling water
- Diamond wheel for prevention of core sectional dimension deflection
- Automatic supply of lubricant oil

■ Specification

Model		RCP - 11
Table Size	mm	180(W) x 400(D)
Power		380V, 3P, 60Hz
Table Transfer Length	mm	520
Saddle Transfer Length	mm	250
Table Center Length	mm	500
Spindle Speed	rpm	3600
Diamond Wheel	mm	150 x 20t x 31.75
Down Feed Handle		1 Scale Mark 5/1000
Front & Rear One(1) Rotation Length	mm	4
Up & Down One(1) Rotation Length	mm	2
Machine Space	mm	1500(W) x 1200(D) x 2000(H)

■ Parts

- Diamond wheel for rock grinding: 150x20(mm)
- Cooling water supply tank: 1 set
- 2-NX core block holder: 1 set

<Option>

- Dust collecting device

<V-block NX, 25mm>

<Diamond wheel>

< Core grinding >

<Left: Dust collecting (option); Right: Cooling unit>

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조달물품분류번호: 20101508
물품식별번호: 21313306

Auto. Core Precision Machine

■ Characteristics

- Rock (core) grinding machine (rock, graphite rods, and concrete)
- A machine capable of grinding NX cores and graphite rods to uniform dimensions
- Performs precise top and bottom surface grinding before compression strength testing
- Automatic cooling water supply after fixing the NX core or graphite rod in the vise
- Automatically stops after grinding is completed
- Returns to the original position after grinding
- Equipped with vise feed speed control function
- Cooling pump separately installed with self-circulating external supply system
- Core position can be adjusted
- Equipped with transport wheels and a protective bellows cover against sludge
- Fully enclosed structure for maximum noise reduction (suitable for indoor use)
- Enables safe and automatic precision grinding even for unskilled operators

■ Specification

Model		RCP - 12
Size	mm	600(950)x950x800(1200)
Motor		1HP, 220V(380V, 3P), 2P
Shaft		25.4mm (1")
Vise	mm	V- Block Vise 4 ea54Ø*110mm(+,- 20mm)
rpm		2500 rpm
Diamond Wheel		10"(8")
Vise Speed Motor		25W, 220V, S8125 GT
Dial Indicator(water proofing)		20mm
Vise Speed Motor Inverter		FR 2520.0.2K

■ Parts

- Diamond Wheel: 250mm, 1ea
- Cooling Pump: 1 set

< Simultaneous grinding of four rock cores or graphite rods >

< graphite rods grinding>

< A four-sample fixing device and precise left-right feed system >

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Cerchar Abrasiveness Index Tester

■ Characteristics (ASTM D7625-22 Design)

- A set of equipment for measuring the wear index of rock core specimens
- CERCHAR abrasiveness tester is equipped with a loading frame for applying a 70 N load and fixing the stylus pin, as well as a cross table with a digital indicator for securing the specimen and enabling horizontal movement (left–right / front–back)
- Digital wear measurement device includes a cross table with micrometers for precise left–right and front–back movement of the stylus pin, and a USB data transmission cable for image observation of pin wear (viewable on the user's computer or laptop)
- Stylus pin grinder is a sharpening device used for reconditioning the stylus pin

■ Specification

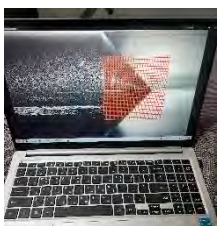
Model		RCAT - 1
Machine Space	mm	330(W) x 500(D) x 600(H)
Working Table Size	mm	500(W) x 600(D) X 600(H)
Tool Power & Stylus Pin Load		220V, 2P & 70N
Scratch distance precision	mm	0.01
Table Center Length	mm	500
Steel Stylus Hardness		Rockwell Hardness HRC 55
Maximum specimen diameter & height	mm	75 & 150
Steel Stylus pin & Cross table	mm	10 & 0.01*75mm
Digital micrometer	mm	0-25,2ea
Microscope magnification		25-50
Collet chuck	mm	10
Position indicator pitch		3

■ Parts

- Steel Stylus Pin: 10 mm, 50 ea

<Options>
A computer or laptop for image observation of stylus pin


<Steel Stylus Pin>


Observation of Stylus Pin on a Laptop>

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