Waterproof Crack Repair Reinforcement Solution

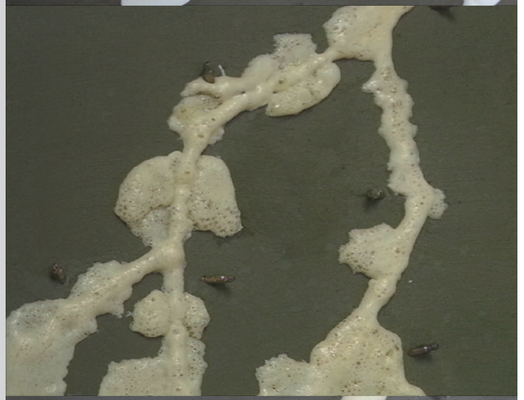
01

INTRO-
DUCTION

COMPANY INTRODUCTION
HISTORY
MAIN PRODUCTS

WATERPROOF & CRACK REPAIR & REINFORCEMENT SOLUTION

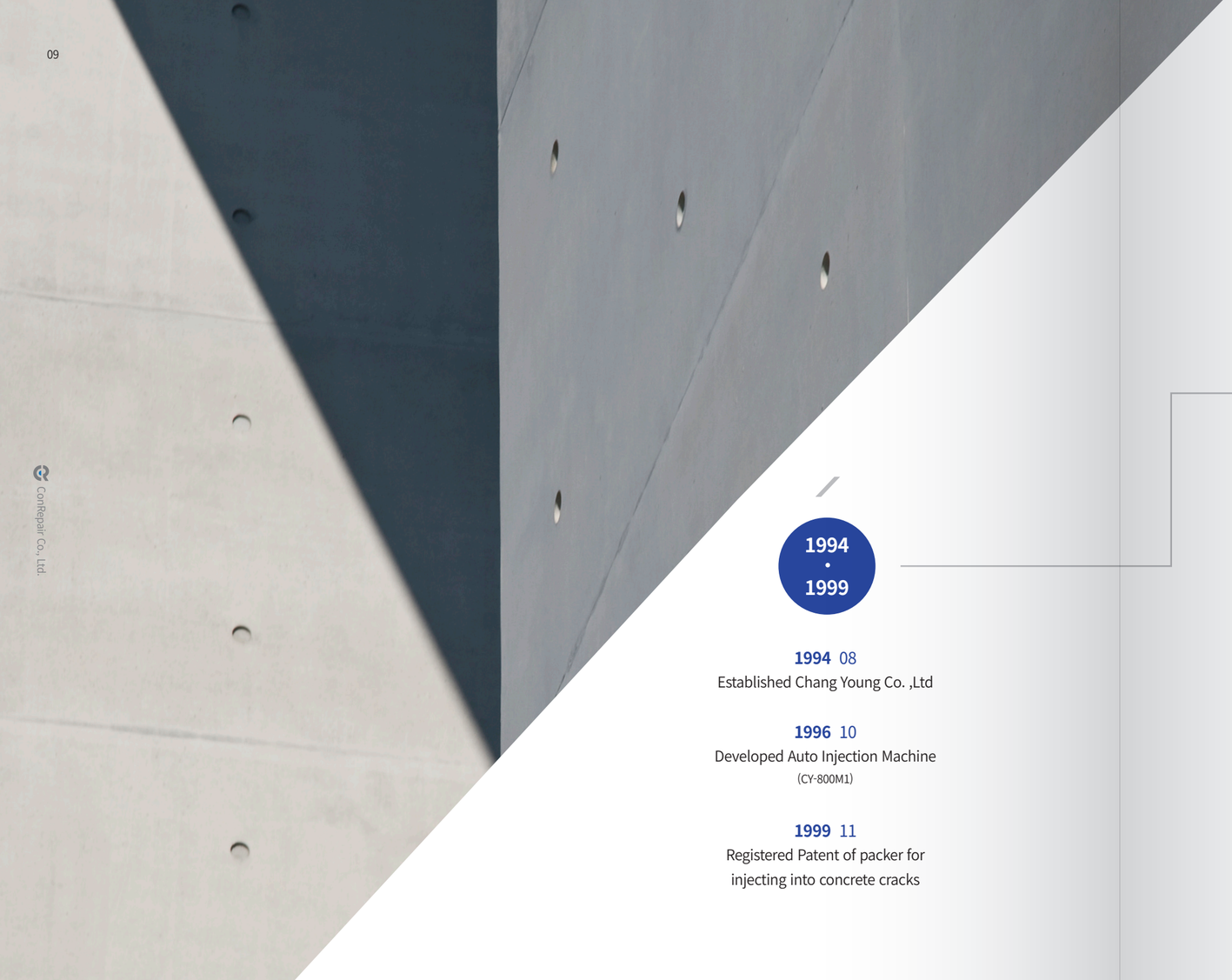
We, ConRepair Co., Ltd.
has dedicated to **waterproof & crack repair & reinforcement solution**
on concrete structures ever since
it's foundation in 1994.



ConRepair, We are the Best

As the manufacturer, exporter and supplier of injection equipments and water-poof chemicals, we have provided our superior products to construction sites as Dam, Mountain Tunnel, Subway Tunnel, Underwater Tunnel, Nuclear Power Plant, Tidal Power Plant, Deep Basement of Skyscraper, etc. in South Korea over 23 years, and has exported to all over the world.

We automatized the packer production facility, and have invested R&D in chemicals, injection machines and packers in order to provide the high quality products with reasonable price to our clients.
We have been keeping our good reputation for superior quality and fantastic service with our dedication and efforts.



OUR HISTORY

1994 · 1999

1994 08
Established Chang Young Co. ,Ltd

1996 10
Developed Auto Injection Machine
(CY-800M1)

1999 11
Registered Patent of packer for
injecting into concrete cracks

2002 · 2013

2002 02
Started exporting to U.S.A

2003 01
Developed Auto Injection Machine
with second transmission(CY-800M2)

2009 03
Move to office to Gwacheon-dong

2012 10
Established factory at Siheung-si,
Gyeonggi-do, Korea

2013 01 ~ NOW
Have exported to U.S.A, India, Canada,
Singapore, Vietnam, Malaysia, etc

2015 · 2019

2015 05
Acquired the Certificate as
E-trade Frontier Company

2015 12
Acquired the Certificate as
Export Frontier Company

2016 04
Acquired ISO 9001 : 2008

2016 08
Developed New Auto Injection Machine
(CY-1000)

2016 10
Built additional production facilities

2017 05
Developed Acryl Injection Machine(ACY-800)

MAIN PRODUCTS

INJECTION PUMP

- CY-1000
- CY-800M1
- CY-800M2

High pressure Grouting Injection Pump for Epoxy resin and Polyurethane Foam
Electric Drill operated
(Makita Drill Model HP1630k & HP2070F)
High pressure 610-1,000 kgf/cm² grouting injection pump

INJECTION PACKER

- 10Ø X 60mm
- 10Ø X 100mm
- 10Ø X 140mm

Users can extend packer's length by adding aluminum body.

PU FOAM

- CYH-500
- CYH-202
- CY-101
- CY-505
- CYH-303

Using the PU foams are best way to stop the water leakage.

EPOXY RESIN

- DEL-090
- DEP-009
- HEL-080
- HEP-008
- CRM-120

It is a specialized repair and reinforcement material that is injected to cracks in the various types to keep the initial concrete state by maintaining the best adhesiveness.

SYRINGE INJECTOR

It is used for low pressure injection.

CARBON FIBER

- CRR-100
- CRP-105

Advanced Reinforcement Solution

CRR-100: Carbon fiber Resin
CRP-105: Carbon fiber Primer

ACRYLATE INJECTION PUMP

- ACY-800

Acrylate injection pump

ACRYLIC AGENTS

- ACY-808

Acrylic agents

GRINDING MACHINE

- MPG-24

Mega Power
Floor Grinding Machine

02

PRODUCTS

INJECTION PUMP
INJECTION PACKER
POLYURETHANE FOAM
EPOXY RESIN
SYRINGE INJECTOR
CARBON FIBER
ACRYLATE INJECTION PUMP
ACRYLIC AGENTS
GRINDING MACHINE

Injection Pump

High pressure Grouting Injection Pump for
Epoxy resin and Polyurethane Foam
Electric Drill operated
(Makita Drill Model HP1630k & HP2070F)
High pressure 610-1,000 kgf/cm^2
grouting injection pump

Features

- Very simple to operate.
- Easy to carry in narrow and small space because its light weight & compact design.
- Easy to exchange piston.
- Low maintenance cost and Easy to clean after use.

Model Type

SPECIFICATIONS	CY-1000	CY-800M1	CY-800M2
TRANSMISSION FUNCTION	1-Speed	1-Speed	2-Speed
POWER CONSUMPTION	AC220V. 710W	AC220V. 710W	AC220V. 1010W
MAXIMUM PRESSURE	610kgf/cm^2	700kgf/cm^2	1,000kgf/cm^2
RECOMMENDED PRESSURE	300~500	300~500	300~500
MAX. FLOW RATE	400cc/min	400cc/min	700cc/min
WEIGHT	6kg	12kg	14kg
UNIT COMPOSITION	Same as pictures	Same as pictures	Same as pictures
MODEL			

Parts & Accessories

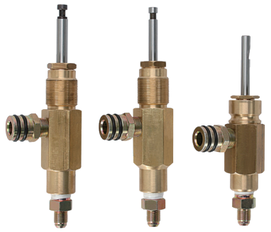
High Pressure Hose
3m / 4m / 6m

Wire Switch

Grease Gun Coupler

Grease Gun Coupler
With Valve

Container



Piston:
CY-800: Ø8 , Ø10 I CY-1000: Ø8

Zerk for Injection Pump
(Grease gun coupler)

Pressure Gauge

Injection Packer

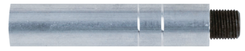
It is expendable tools for
using to inject Polyurethane and
Epoxy into concrete cracks.
The ConRepair's packers
bear up against high pressure,
have strong durability,
and were designed for easy installation
and easy removal.
Also, we manufacture all sizes
which are able to cover whole
construction industry.

Packer Sizes

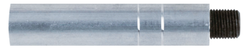
8Ø X 55mm		
10Ø X 60mm	10Ø X 100mm	10Ø X 140mm
13Ø X 70mm	13Ø X 120mm	13Ø X 150mm
14Ø X 70mm	14Ø X 120mm	14Ø X 150mm

25mm

40mm



40mm

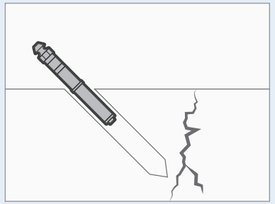


35mm

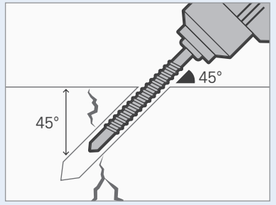
Users can extend packer's length by adding Aluminum body.

Injecting Method (Pump)

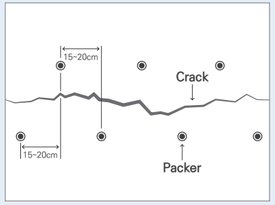
1.
Check crack area
and Clean up
the surface with
wire brush or grinder.



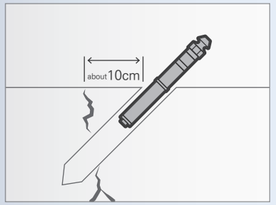
2-2.
To prevent that packers
don't penetrate through
a crack as image 2-2,



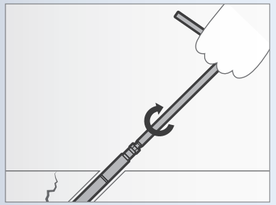
2-1.
Drill holes near cracks
using hammer drill
with 45° angle from
surface as image 2-1.



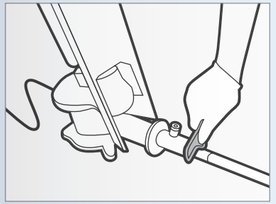
2-3.
hole positions must be
zigzag as image 2-3,
and also make hole distances
with every 15~20cm.



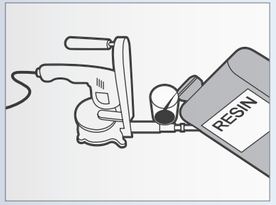
3.
Insert packers into
the drilled holes.



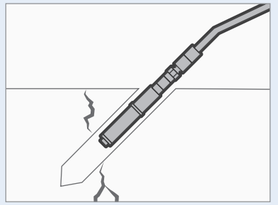
4.
Fasten packer tightly
using T-wrench.



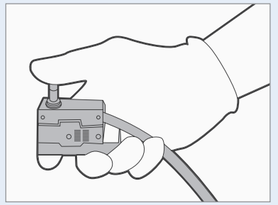
5.
Connect the hose
to the piston.



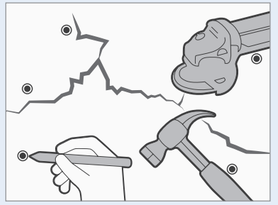
6.
Pour the Resin to
the plastic bottle.



7.
Connect the grease coupler
with the installed packer.
(Inject first at low area,
and then go to upper area.
Down → Up)



8.
Push the switch for
running machine, and
inject PU foam or Epoxy
resin into a hole.
Start with low pressure,
and increase pressure.
When PU foam or Epoxy
flows out from the
cracks, stop injection,
and move to another
packer, and start
injection again.



9.
After finishing injection
work, remove packers
by hitting packers
using a hammer.
Clean the surface using
a scraper or a grinder,
and if needed, coat
with sealing materials.

CYH-500

Single Component Hydrophobic Type PU

CYH-500 is a hydrophobic grout based on polyurethane. Upon contact with water CYH-500 reacts to closed cell rubber-like foam while expanding its volume up to 27 times.
The cured material is of a constant volume.
Since water is not a component of the foam structure, the cured material is essentially not affected by water or dryness. The reacted material does not shrink or swell. Depending on the pressure of injection CYH-500 reacts to a very dense material or foam.

Uses

Areas of Application Include

- Defective concrete. (Cracked or Honeycombed)
- Concrete joints, Limestone, Brick construction.
- Pipe intrusions, Waste water tanks.
- Tunnels, Dams, Subway (Metro), Sewers, Manholes, Utility boxes, etc.
- Soil stabilization.

Advantages

- Negative side application possible.
- Deep penetration into very small cracks.
- Foam increases in volume to fill cavities and voids.
- Excellent bond to surfaces.
- Good adhesive strength, tolerant of movement.
- Inert after curing, constant volume, no shrinkage.
- Does not create new cracks.

Important Notes

- Minimum ambient and substrate temperature is 5°C.
- Material shall be store in a dry cool place.
- Good storage stability for unopened containers at 15°C~30°C.

Technical & Physical Data

FORM	Liquid Type
COLOR	Dark Brown
SOLUBILITY IN WATER	Hydrophobic
DENSITY (G/ML)	1.12
VISCOSITY (KS F 4923)	100~200 mPa·s
MAX. EXPANSION (25°C)	2,700% [Ratio 10:1 Resin:Water]
INDUCTION TIME (25°C)	15 sec [Ratio 2:1 Resin:Water]
GEL TIME (25°C)	110 sec [Ratio 2:1 Resin:Water]
TENSILE SHEAR STRENGTH (23°C), (KS M 3705)	4 N/mm^2
APPEARANCE	Light yellow Polyurethane Foam
CORROSIVENESS	Non-Corrosive
CHEMICAL RESISTANCE	Resistant to more organic Solvent, Mild Acids, Alkali
SHELF LIFE	1 year when unopened and undamaged
STORAGE CONDITION	Store in a dry cool place
PACKAGING	20 kg/pail

CYH-202

Single Component Semi-rigid Polyurethane

CYH-202 Semi-hydrophobic Polyurethane Grouting is
used to stop leaks and fill underground voids.
CYH-202 is a polymer solution which cures
when reacted with water,
CYH-202 can not only stop the water,
but also it can stop or slow
the deterioration of steel bar or
other internal features of the concrete.
This success is due to
the placement of CYH-202
throughout the depth of the crack.

Uses

Areas of Application Include

- Retaining Walls
- Bathrooms
- Floor Slabs
- Water Tanks
- Terraces and Balconies
- Patios
- RC gutters and Planter Boxes
- Swimming Pools
- Suspended Floors
- Basements and Fountains

Advantages

- Underwater injection approved.
- Good elastic strength, tolerant of movement.
- Inert after curing, constant volume, no shrinkage.
- Foam increases in volume to fill cavities and voids.
- Excellent bond to wet surfaces.
- Negative side application possible.
- Deep penetration into very small cracks.
- Does not create new cracks.

Important Notes

- Minimum ambient and substrate temperature is 5°C.
- Material shall be store in a dry cool place.
- Good storage stability for unopened containers
  at 15°C~30°C.

Technical & Physical Data

FORM	Liquid Type
COLOR	Transparent Light Ivory
SOLUBILITY IN WATER	Semi-hydrophobic
DENSITY (G/ML)	1.09
VISCOSITY (KS F 4923)	150~250 mPa·s
MAX. EXPANSION (25°C)	1,700% [Ratio 10:1 Resin:Water]
INDUCTION TIME (25°C)	20 sec [Ratio 2:1 Resin:Water]
GEL TIME (25°C)	80 sec [Ratio 2:1 Resin:Water]
ELONGATION AT BREAK (%)	> 30
TENSILE SHEAR STRENGTH (23°C), (KS M 3705)	3 N/mm^2
APPEARANCE	White Polyurethane Foam
CORROSIVENESS	Non-Corrosive
CHEMICAL RESISTANCE	Resistant to more organic Solvent, Mild Acids, Alkali
SHELF LIFE	1 year when unopened and undamaged
STORAGE CONDITION	Store in a dry cool place
PACKAGING	20kg/pail

CY-101

Single Component Hydrophilic Polyurethane

CY-101 Hydrophilic Polyurethane Grouting is used to stop leaks and fill underground voids. CY-101 is a polymer solution which cures when reacted with water, CY-101 can stop the water, it can stop or slow the deterioration of steel bar or other internal features of the concrete. This success is due to the placement of CY-101 throughout the depth of the crack.

Uses

Areas of Application Include

- Bathrooms
- Water Tanks
- Patios
- Swimming Pools
- Basements and Fountains
- Retaining Walls
- Floor Slabs
- Terraces and Balconies
- RC gutters and Planter Boxes
- Suspended Floors

Advantages

- Underwater injection approved.
- Good elastic strength, tolerant of movement.
- Inert after curing, Constant volume, No shrinkage.
- Foam increases in volume to fill cavities and voids.
- Excellent bond to wet surfaces.
- Negative side application possible.
- Deep penetration into very small cracks.
- Does not create new cracks.

Important Notes

- Minimum ambient and substrate temperature is 5°C.
- Material shall be store in a dry cool place.
- Good storage stability for unopened containers at 15°C~30°C.

Technical & Physical Data

FORM	Liquid Type
COLOR	Ivory
SOLUBILITY IN WATER	Hydrophilic
DENSITY (G/ML)	1.13
VISCOSITY (KS F 4923)	180~300 mPa·s
MAX. EXPANSION (%)	1,550 % [Ratio 10:1 Resin:Water]
INDUCTION TIME (25°C)	15 sec [Ratio 2:1 Resin:Water]
GEL TIME (25°C)	70 sec [Ratio 2:1 Resin:Water]
ELONGATION AT BREAK(%)	> 30
STRENGTH (SAND FILLED)	1 N/mm^2
APPEARANCE	White Polyurethane Foam
CORROSIVENESS	Non-Corrosive
CHEMICAL RESISTANCE	Resistant to more organic Solvent, Mild Acids, Alkali
SHELF LIFE	1 year when unopened and undamaged
STORAGE CONDITION	Store in a dry cool place
PACKAGING	20kg/pail

CYH-303

High Flexible PU Foam (Double Components Type)

CYH-303 is self-reacting of double components(Resin & Hardener) type
hydrophilic polyurethane which has polyether polyol properties.
CYH-303 applies to the leakage area for the waterstops where has vibration also
because it has elastic property foaming ratio with water is very lower than normal PU foam (Hydrophobic type).
CYH-303 density is high and hardened foam is same like a rubber. Therefore, it is useful for the expansion joints and water
leakage caused by deformation. Waterproof effects last semi-permanently.
It provides strong physical strength after contact with water.
So these properties brings excellent bonding strength to give
the waterproof ability and reinforcement. It is high elastic PU material.

Feature

- The hardened foam cannot be fractured by compression test because it has elastic characteristic material.
- It has strong adhesive. So it has strength and high elasticity on both wet and dry cracks because it is self-reactive type, dual components PU resin. Also, it has an effective on reinforcement and waterstops.
- CYH-303 provides good waterproof effect because of it's low viscosity and it's enable to penetrate into fine crack. Also it is easy to inject the fine leakage areas.
- You have enough time(approximately 60~100min.) to inject PU resin after you mix the double(Main&Hardener) components, So you are able to inject the PU foam by using single component injection pump(CY-1000, CY-800M1).

Usage

- Tunnel, Expansion joint. Basement. Moving structure.
- Utility boxes, Sewers, Dams, Subway(Metro) Concrete joints. Defective concrete.
- Underground concrete structures, Basement parking area.
- For repair of dry & wet cracks and reinforcement for every concrete structure.

Important Notes

- Minimum ambient and substrate temperature is 5°C
- Store in cool and dry places.
- Good storage stability for unopened containers at 15~30°C

Technical & Physical Data

	BASE AGENT	CURING AGENT	REMARKS
APPEARANCE	White	Colorless Transparent Liquid	
MIXING RATE	1	1	Weight Ratio
SPECIFIC GRAVITY	1.0 ± 0.1	1.0 ± 0.1	
VISCOSITY(mPa-s)	150~200	150~250	
MIXTURE VISCOSITY	200 ± 100		25°C
PORT LIFE(MIN.)	60		25°C
CURING TIME(HRS.)	24		
PACKING UNIT	10kg	10kg	

CY-505

Double Component Type High Strength Polyurethane Water Stop Material

CY-505 is Double component type hydrophobic polyurethane resin that cuts off water from cracks and reinforces the maintenance works on concrete structures, subways and tunnels.
It is a low expansion water stop reinforcing agent of which the water reaction expansion ratio is minimized.
Compared to conventional polyurethane water stop materials, it is stronger and its hardened foam is more rigid. It does not generates defects by foam deformation and it provides virtually permanent water stop effect.

Features

- With its low viscosity property, it penetrates into leakage sections in tiny cracks and provides perfect water stop performance.
- After hardened, it provides excellently higher compressive, adhesive and tensile strengths that the mechanical strength of conventional concrete structures.
- Since its pot life is sufficient(about 30~50 minutes)when the base agent and the curing agent are mixed, injector, it can be injected by the single component injector.(CY-800M1, CY-0800M2, CY-1000)

Uses

- Defective concrete. (Cracked or Honeycombed)
- Tunnels, Dams, Subway(Metro), Sewers, Manholes.

Advantages

- Reinforcement of deteriorated concrete structure.
- Repair concrete cracks for water-stop.
- It is possible to use at dry and wet concrete cracks.
- Deep penetration into finest cracks.
- Inert after curing, no shrinkage.
- Does not create new cracks.

Packing Unit

- Base agent(20kg) and Curing agent(20kg)

Important Notes

- Minimum ambient and substrate temperature is 5°C.
- Material shall be store in a dry cool place.
- Good storage stability for unopened containers at 15°C~30°C.

Technical & Physical Data

	BASE AGENT	CURING AGENT
MIXING RATIO (WEIGHT RATIO)	100	100
APPEARANCE	Dark Brown Liquid	Colorless Transparent Liquid
VISCOSITY(mPa-s)	250	210
SPECIFIC GRAVITY(g/ml)	1.21	1.03
POT LIFE (25°C)	30~60 min.	
CURING TIME (25°C)	After 24 hrs.	
COMPRESSIVE STRENGTH (25°C)	55N/mm^2	
TENSILE STRENGTH (25°C)	18N/mm^2	
TENSILE SHEAR STRENGTH (25°C)	7.6N/mm^2	
EXPANSION RATIO (25°C)	100%~110% [Ratio 1:1 Base Agent:Curing Agent] 200% [Ratio 10:1 Mixed Agent:Water]	

DEL-090

Double Component Low Viscosity Dry Epoxy Injection Agent

It is a specialized repair and
reinforcement material that
is injected to cracks in the various types to
keep the initial concrete state
by maintaining the best adhesiveness.

Features

- To easily inject by crack width, it is divided into the ultra-low viscosity product, the low viscosity product, the mid-viscosity product and the high viscosity product.
- To control the curing speed, it is divided into the summer product, the spring and fall product and the winter product. Its curing speed can be controlled by the user's requirement.
- When fully hardened after injected, it does not chemically affect the concrete structure and it prevents corrosion on it so highly durable.

Usage

Areas of Application Include

- Crack repair or steel plate reinforcement.
- Bird-caged floor(artificial stone or marble) repair and reinforcement.
- To be injected by using syringe injectors, injection pumps.

Technical & Physical Data

MIXING RATIO (BASE AGENT: CURING AGENT)	2:1(Weight Ratio)
POT LIFE(25°C)	30~50 min.
CURING TIME(25°C)	After 24 hrs.
VISCOSITY(mPa-s)	210
SPECIFIC GRAVITY	1.18
TENSILE STRENGTH	56N/mm^2 (KS F 4923)
COMPRESSIVE STRENGTH	117N/mm^2 (KS M 3015)
ADHERENCE STRENGTH	7.5N/mm^2 (KS F 4923)
INJECTING TOOL	Injector, Grease Gun, Injection Pump
PACKING UNIT	Base Agent(10kg) : Curing Agent(5kg)
THEORETICAL CONSUMPTION	Width 0.3mm x Thickness 300mm : 0.15kg/m (Differ according to site condition)

DEP-009

Double Component Dry Sealant for Crack and Steel Plate Reinforcement

It is a typical high strength epoxy sealant for concrete structure repair and reinforcement.
It is used on the crack sealing for the epoxy injection work, the steel plate reinforcement sealing and the syringe injector pedestal mounting and other multiple sealing works.
And, it is highly adhesive to concrete and highly impact resistant.

Features

DEP-009, with its outstanding property,
is excellently adhesive to a wide variety of materials such as concrete, metal, cement and mortar.
Since it does not run down, it is highly workable on the vertical surface and the ceiling.
When fully hardened, it does not chemically affect the steel reinforcement in the structure or the concrete structure.
After hardened, it is free of internal stress so to maintain the stably adhesive structure.
Compared to the cement mortar or the concrete, it exhibits outstanding mechanical strength in every aspect such as compressive strength, the flexural rigidity and the tensile strength.

Usage

Crack sealing for crack repair, pedestal mounting and steel plate reinforcement sealing.

Technical & Physical Data

MIXING RATIO (BASE AGENT : CURING AGENT)	1:1(Weight Ratio)
POT LIFE(25℃)	30~50 min.
CURING TIME(25℃)	After 24 hrs.
VISCOSITY(mPa-s)	Paste
SPECIFIC GRAVITY	1.74
TENSILE STRENGTH	21.2N/mm^2 (KS F 4923)
COMPRESSIVE STRENGTH	53N/mm^2 (KS M 3015)
ADHERENCE STRENGTH	6.8N/mm^2 (KS F 4923)
PACKING UNIT	Base Agent(10kg), Curing Agent(10kg)
THEORETICAL CONSUMPTION	Crack Width 0.3mm : 0.2kg/1m (Differ according to site condition)

HEL-080

Double Component Low Viscosity Wet Epoxy Injection Agent

It is a specialized repair and reinforcement material that is injected to cracks with wet to keep the initial concrete state by maintaining the best adhesiveness.
The humidity, moisture, and oil at construction structure cause a damage to the chemical reaction of between epoxy resin and hardener, and cause the decrease of strength, adhesion.
HEL-080 is epoxy for wet by increasing hydrophile, as the solution of the problem.
HEL-080 is a specialized in the cracks with wet, moisture, humidity. HEL-080 is low viscosity, which is capable of injecting into fine cracks.

Features

It is excellent at wet side and wet cracks.
To control the curing speed,
it is divided into the summer product,
the spring and fall product and the winter product.
Its curing speed can be controlled by
the user's requirement.
It is easy to mix and barely shrink.
When fully hardened after injected,
it does not chemically
affect the concrete structure and
it prevents corrosion on it so highly durable.

Usage

Crack repair or steel plate reinforcement on wet & moisture concrete.

Technical & Physical Data

MIXING RATIO	2:1 (Base Agent : Curing Agent)
POT LIFE(25°C)	15 min.
SET-TO-TOUCH FREE CURING TIME(25°C)	After 24 hrs.
VISCOSITY(mPa-s)	600
SPECIFIC GRAVITY	1.18
TENSILE STRENGTH	54N/mm^2 (KS F 4923)
ELONGATION PERCENTAGE OF TENSILE STRENGTH	2% (KS F 4923)
COMPRESSIVE STRENGTH	114N/mm^2 (KS M 3015)
ADHERENCE STRENGTH	8.9N/mm^2 (KS F 4923)
INJECTING TOOL	Grease Gun, Injection Pump (CY-800/CY-1000)
PACKING UNIT	Base Agent (10kg), Curing Agent (5kg)

HEP-008

(Wet Type Epoxy Putty)

HEP-008 is a epoxy putty made from special polyamid which does not dissolve in water during application and also after application to repair cracks on under-water concrete structures.

Feature

- It's a epoxy sealant with fortified hydrophilic properties to be used in wet and under-water applications.
- Excellent adhesion.
- It is not disintegrated in water cause of its excellent waterproof quality.
- To be mixed with wet gloved hands same as flour-kneading.
- Mixed at a simple ratio of 1:1 with the using of very small quantity of water(Few drops quantity) (Part A Epoxy Resin : Part B Hardener)
- Better strength along with all features such as compression strength, tensile strength, and adhesion strength, etc.

Usage

- Sealing and repairing of cracks on under-water and wet surfaces of concrete structures.
- Repairing of cracks on under-water structures such as port, dam, tank, pool, waterway, etc.

Packing unit

- Epoxy Resin : 10kg
- Hardener : 10kg
- Packing Type : Plastic Bucket
- Tools Required : Hand Mixing

Technical & Physical Data

MIXING RATIO (PART A : PART B)	1 : 1
POT TIME	20~30 min.
SET-TO TOUCH TIME	24 hours
VISCOSITY(mPa-s)	Paste
TENSILE STRENGTH	6.8 N/mm^2 (KS F 4923:2005)
ADHESION STRENGTH	18.4 N/mm^2 (KS F 4923:2005)
COMPRESSION STRENGTH	53 N/mm^2 (KS M 3015:2003)

CRM-120

EXTRA-RAPID SETTING MORTAR for Repair

Description

CRM-120 is an excellent mortar which has an effect on stop water leakage by starting cure within 2~3 minutes after mixing. It is ideal for water leakage on horizontal and vertical concrete surfaces.

Feature

- Waterstop
- Quick setting
- Sealing water leaks in 2~3 minutes
- Suitable for vertical and horizontal concrete surfaces
- Non toxic

Usage

- Easily forced into cracks with a gloved hand to plug leaks.
- For eliminating leaks under pressure effectively and quickly.
- Stop water leakage at once on the floor and on the wall of concrete structure's.

How To Use

Surface Preparation

- Clean surface of substances could affect the bond of CRM-120 which includes form release agent, dirt, paint, wax and friable delaminated concrete, etc..
- Work the crack or hole to a depth and width of at least.(20mm)

Mix and Application

- Put the moderate amount of CRM-120 and carefully add to clean and clear water while stirring with a trowel or gloved hands.
- Mix until it becomes soft such as putty.
- Mix the amount of material that is able to be applied in 2~3 min.

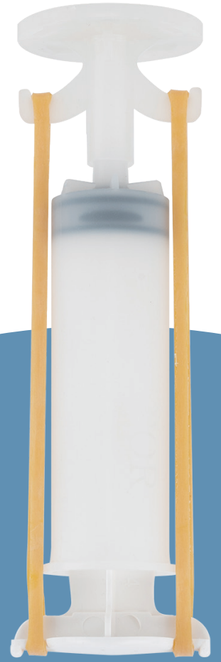
Important Notes

- CRM-120's applicable temperature is +5°C~+30°C.
- May be differ the curing time according to temperature and humidity at the construction site.
- It is recommended to store the materials in a cool place. During the summer season and maintain water temperature lower prior to using.
- If necessary, take appropriate measures, e.g. Use warm water if ambient temperature is low.
- Do not add additives or any other dusts with CRM-120.
- CRM-120 contains cement and produces an alkaline reaction with water. So protect skin and eye's during application. If contact occurs, wash thoroughly with water.

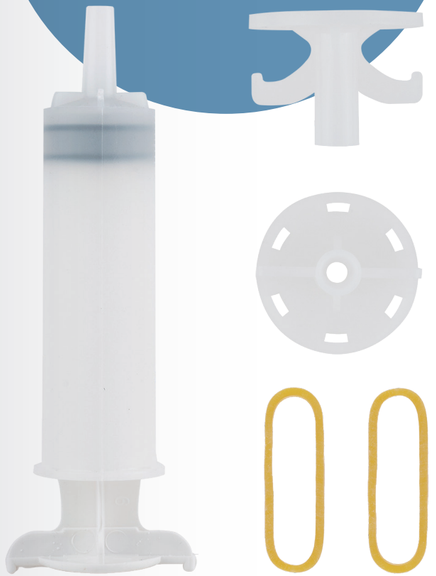
Technical & Physical Data

BASE	Combination of special cements and additives.
POWDER DENSITY	approx. 1.3 kg/l
APPLICATION TIME	approx. 2~3 min.
APPLICATION TEMPERATURE	5°C to 40°C
MIX PROPORTIONS	approx. 0.3kg water for 1kg
COMPRESSIVE STRENGTH	after 6 hours ≥ 12.5 N/mm^2
	after 24 hours ≥ 18.0 N/mm^2
	after 28 days ≥ 35.0 N/mm^2
BENDING TENSION STRENGTH	after 6 hours ≥ 2 N/mm^2
	after 24 hours ≥ 3 N/mm^2
	after 28 days ≥ 8 N/mm^2
AMOUNT REQUIRED	approx. 1.5kg/l cavity volume
PACKAGING	10kg/pail
STORAGE CONDITION	Shelf life at least 12 months in a dry place

SYRINGE INJECTOR



It is used for low pressure injection.
The syringe injector is able to inject epoxy
into small cracks at large area at the same time,
and its transparent syringe body
allows you to observe the injected dosage.



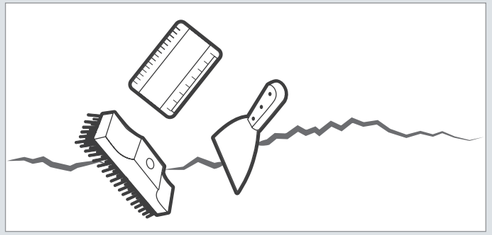
Features

- The Transparent syringe allows you to observe the injected dosage.
- It is designed for low pressure injection.
- It is used for injecting epoxy into small cracks at large area.
- Crack repair work is possible without breaking or destroying the concrete structure.

Specifications

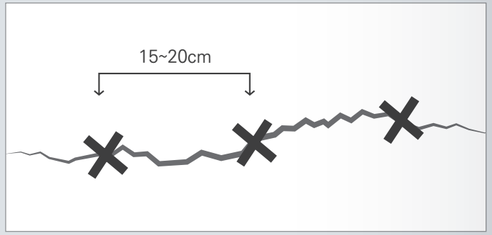
FILLING CAPACITY	50ml/cc
MAX. PRESSURE	3.0kgf/cm^2
MAX. LENGTH	225mm
MIN. LENGTH	147mm
WEIGHT	40g
PACKING	500pcs(1box)

Injecting Method (Syringe)

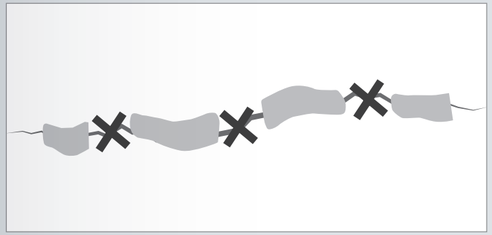


1. Check the cracks' positions, widths and depths using crack gauge.

2. Clean the surface and remove any dust or contaminated materials from the concrete surface using scraper and wire brush, and determine the injection method.

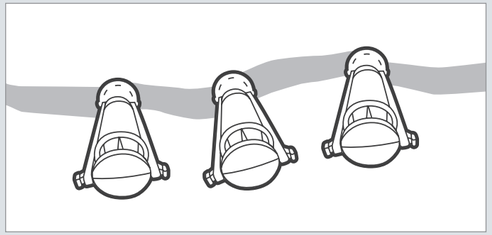


3. Mark the places which will install pedestals.
The required number of syringe per one meter depends on the conditions of concrete thickness, width, depth.
In most cases, 5~6 syringes per meter is appropriate.

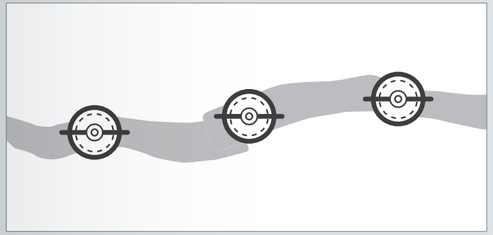


4. Seal the cracks using epoxy putty(DEP-009) except the marked places.

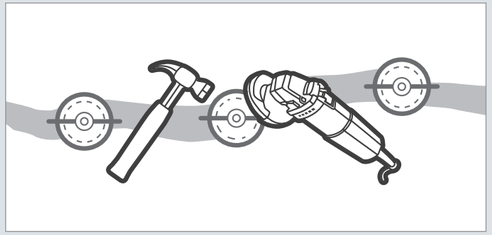
5. After applying epoxy putty at the edge of pedestal, attach the pedestals to the marked places, and make sure all cracks covered seamlessly.



7. Suck the mixed epoxy inside syringe(30cc), and mount the syringe into pedestal, and fasten the syringe and pedestal each other using the rubber band.
(Start from low area, then go to upper area. Down→Up)



6. DEL-090 is the Double component type epoxy for dry, therefore mix the resin and hardener each other with the accurate ratio of 2:1. The pot life varies depending on the site environment and the material temperature, therefore, check the pot life by mixing the small quantity before mass use.



8. When epoxy is hardened, remove syringes and pedestals, and do the surface finishing work by using the hand grinder.

Carbon Fiber

Advanced Reinforcement Solution

It is cutting edge new material for
load-bearing capacity improvement and
seismic retrofit, and have very strong
tensile strength than steel, and
have been used for repair and
reinforcement of concrete structure since 1990s.
Specially quake-prone countries like
Japan have used
carbon fibers lately and largely.

Features

- High reinforcement with more than 10 times tensile strength than steel.
- Reinforcement with the less quantity than steel.
- Light Weight : Specific gravity is one-fifth of steel.
- No deterioration by external factors like water, base, acid or ultraviolet rays.
- Easy to work in small place because whole process by using hand.
- Site workability is outstanding.

Technical & Physical Data

ITEM	CU-P200	CU-P300	CU-P400	CU-P600
FIBER AREAL WEIGHT(g/m2)	200	300	400	600
DESIGN THICKNESS(mm)	0.11	0.167	0.22	0.33
TENSILE STRENGTH(kgf/cmW)	390	590	780	900
SHEET WIDTH(mm) / LENGTH(m)	500/100	500/100	500/100	500/100

CRR-100

Carbon Fiber Resin

Carbon Fiber Epoxy Resin CRR-100 is a reinforcing epoxy resin which can increase the performance of carbon fiber with the outstanding resistance to chemical and water. It is suitable for structural reinforcement as it offers a compelling adhesion performance on concrete and carbon fiber sheet.

Method and Sequence of Use

1. To Mix Carbon Fiber Epoxy Resin CRR-100

For immediate use, mix Carbon Fiber Epoxy Resin CRR-100 with its hardener at the 2:1(by weight) ratio in a container and mix with the electric mixer for about 3-4 minutes until the mixture is in uniform color.

2. To apply Carbon Fiber Epoxy Resin CRR-100

Once mixed, place Carbon Fiber Epoxy Resin CRR-100 in a container. Apply uniformly using rollers or brushes to the surface.

Ensure that no air bubbles or pockets are created on the surface during application. Fix the carbon fiber sheet over the surface within 30 minutes to 2 hours (depending on the temperature at the workshop) of an application before the epoxy resin is hardened.

The standard amount of use of Carbon Fiber Epoxy Resin CRR-100 is as follows:

1) Carbon Fiber Sheet's unit weight 200g/㎡: 0.6~0.8Kg/㎡ (for single ply application)
2) Carbon Fiber Sheet's unit weight 300g/㎡: 0.7~0.9Kg/㎡ (for single ply application)

Caution

- When working with the product, wear protective equipment such as helmets, protective glasses, gloves and work clothes.
- Immediately wipe off the product on the skin and wash the affected area with a cleaner.
- Clean any tools or equipment that has been used with solvent or thinner.
- Ventilate when working in a confined space to bring in the fresh air.
- If the product is on your skin and it irritates your skin, consult with a physician.
- When the temperature is below 5°C, raise the temperature of the product(by placing it in boiling water) to obtain the desired pot life.
- Use the product wisely bearing in mind that the pot life of the chemical fluid is shortened at the humid and hot environment. On the contrary, it is prolonged when the temperature is low.

The Characteristic and Kind of Carbon Fiber Resin

NAME OF GOODS		STANDARD / FOR SPRING & AUTUMN USE	FOR SUMMER USE	FOR WINTER USE
APPLICATION TEMPERATURE(°C)		15~20	25~35	5~15
POT LIFE(Min.)	@30°C	-	45	-
	@20°C	45	-	-
	@10°C	-	-	45
DRYING TIME(HOUR)	@23°C	IN LESS THAN 11 HOURS	IN LESS THAN 15 HOURS	IN LESS THAN 9 HOURS
CURING TIME(DAY)	@30°C	-	7	-
	@20°C	7	-	-
	@10°C	-	-	14
RESIN : HARDENER(WEIGHT)		2:1	2:1	2:1
VISCOSITY(CPS)	@20°C	5,000	7,000	4,000
SPECIFICATION		STANDARD	FOR SUMMER USE	FOR WINTER USE

CRP-105

Carbon Fiber Primer

Carbon Fiber Epoxy Primer CRP-105 contains epoxy resin and Polyamide as primary substances. It has a short pot life and has excellent chemical and water resistance. It penetrates to concrete surface to strengthen adhesion performance.

Method and Sequence of Use

1. Treatment of the Concrete Base

Remove pollutants from concrete (laitance, cement paste, paint, etc.) using a hand grinder, maintain a clean condition and polish the surface smoothly.

If cracks, defects or peelings of the concrete base are severe, they must be repaired beforehand with epoxy crack repair or high strength mortar.

2. To mix Carbon Fiber Epoxy Primer CRP-105

For immediate use, mix Carbon Fiber Epoxy Primer CRP-105 with its hardener at the 2:1 (by weight) ratio in a container and mix with the electric mixer for about 3-4 minutes until the mixture is in uniform color. Wash the empty container with solvent after each use for repeated use at later times.

3. To apply Carbon Fiber Epoxy Primer CRP-105

Once mixed, place Carbon Fiber Epoxy Primer CRP-105 in a container. Apply uniformly using rollers or brushes to the surface. (Standard use: 0.3-0.4Kg/㎡)

Proceed with the next process once the epoxy primer is completely hardened.
Re-apply the product in a sufficient amount for areas where a vast amount of epoxy primer is required for much penetration.

Caution

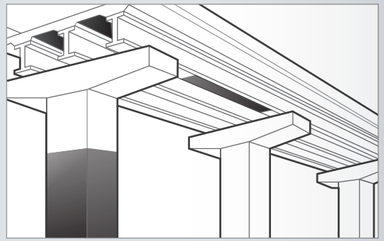
- When working with the product, wear protective equipment such as helmets, protective glasses, gloves and work clothes.
- Immediately wipe off the product on the skin and wash the affected area with a cleaner.
- Clean any tools or equipment that has been used with solvent or thinner.
- Ventilate when working in a confined space to bring in the fresh air.
- If the product is on your skin and it irritates your skin, consult with a physician.
- When the temperature is below 5°C, raise the temperature of the product(by placing it in boiling water) to obtain the desired pot life.
- Use the product wisely bearing in mind that the pot life of the chemical fluid is shortened at the humid and hot environment. On the contrary, it is prolonged when the temperature is low.

The Characteristic and Kind of Carbon Fiber PRIMER

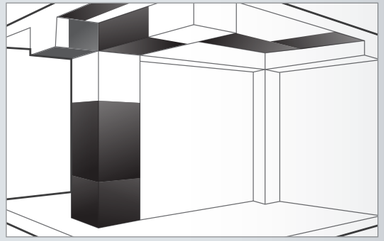
NAME OF GOODS		STANDARD / FOR SPRING & AUTUMN USE	FOR SUMMER USE	FOR WINTER USE
APPLICATION TEMPERATURE(°C)		15~20	25~35	5~15
POT LIFE(Min.)	@30°C	-	45	-
	@20°C	45	-	-
	@10°C	-	-	45
DRYING TIME(HOUR)	@23°C	IN LESS THAN 11 HOURS	IN LESS THAN 15 HOURS	IN LESS THAN 9 HOURS
RESIN : HARDENER(WEIGHT)		2:1	2:1	2:1
VISCOSITY(CPS)	@20°C	1,300	2,000	1,000
SPECIFICATION		STANDARD/ SOLVENT FREE	FOR SUMMER USE/ SOLVENT FREE	FOR WINTER USE/ SOLVENT FREE

Usage

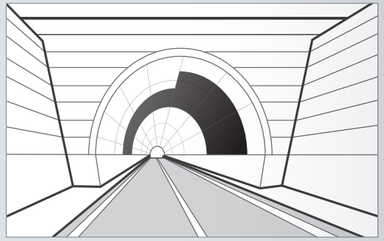
Highway bridge and railway bridge pier earthquake-proof reinforcement.



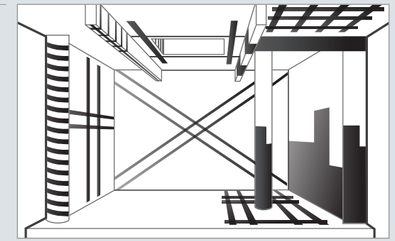
Highway bridge RC deck repair and reinforcement.



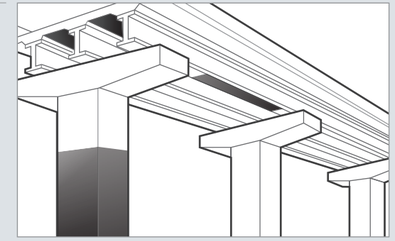
Repair and reinforcement of circular-shaped structure such as tunnel and silo etc.

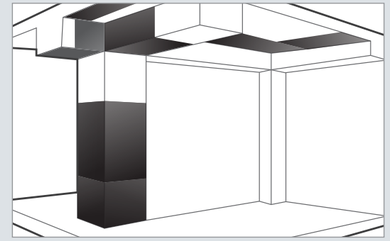


Pillar, beam and wall earthquake-proof reinforcement.

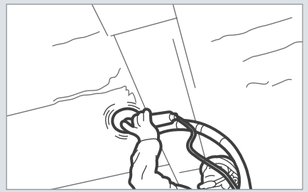


Repair and reinforcement of beam and slab etc.





Application Method

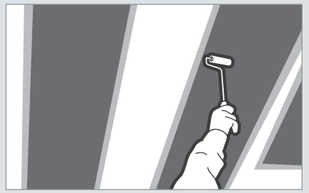


1. Surface Cleaning & Repair
Remove all contaminated area with debris, grease or oil, by grinding and repair cracks or damaged section by injecting epoxy resin.(Grind the corner to have R=30mm radius).
The proper temperature in working space is between 10°C and 35°C.

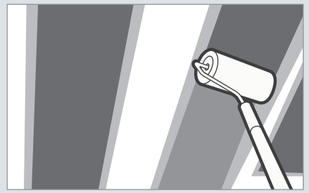
2. Primer Application
Apply primer a couple of times on the positon of concrete surface which will attach the carbon fiber.
(Standard amount of primer : 0.3kg/m^2)

3. The Bent Surface Control
Apply epoxy putty with spatula to step area which waviness is over than 1mm.

4. Top Coat Resin Application(1st)
After drying primer,
apply the top coat resin for adhesion evenly with a roller or a brush.
(standard amount : 0.5kg/m^2)

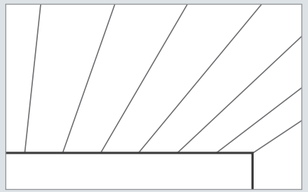


5. Attaching Carbon Fiber Sheet
Attach Carbon fiber sheet on a concrete structure and rub the surface a couple of times with roller or rubber scoop toward the fiber direction. Make sure no-air pocket inside the sheet.



6. Top Coat Resin Application (2nd)
Apply top coat resin on the sheet surface and let resin be penetrated into sheet by rubbing a couple of times to the fiber direction (standard amount of resin : 0.3kg/m^2).
In case of adding more sheets, repeat step 4, 5, 6.

7. Curing
It takes one week to complete hardening of epoxy resin at 20°C and takes two weeks at 10°C.

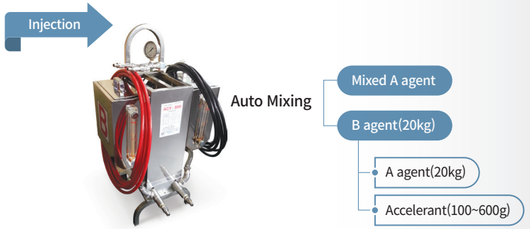


8. Finishing
Finish with painting.

ACY-800

Acrylate Injection Pump

Mixing Ratio of Acryl Rear-Side Grouting Agent



AMOUNT OF ACCELERANT(%)	HARDENING TIME
80g(0.40%)	1m30s±10s
160g(0.80%)	50s±10s
320g(1.60%)	25s±10s
640g(3.20%)	8s±5s
800g(4.00%)	5s±2s

Note

The amount of accelerant may vary depending on the temperature.

Characteristic of Acryl Rear Grouting Agent

Safety

Acryl rear grouting agent does not generate harmful gas when hardened, and it is safe as product does not contain any flammable material.

Workability

Having low viscosity, it shows excellent performance especially in case of minute crack work, and even in case of work for the area where water pressure is high, unequalled construction quality can be realized, compared with existing waterproof agent, because hardening time can be adjusted.

Jellify

Re-water leakage can be prevented fundamentally by making water into gel that is collected in pore of rear side or flowing through.

Adhesiveness

Having excellent property of high elasticity and adhesiveness, water proofing effect can be expected which lasts for a long time after work.

Coefficient of Expansion

Having excellent coefficient of expansion, it can eliminate post-work defect factor caused by vibration to structure, etc.

Durability

This hardened product has excellent durability because it does not cause any hydrolysis phenomenon.

Usage

- Water-proof grouting work for underground structure. (Subway, Tunnel, Parking lot, Manhole, Etc)
- Water-proof work for civil structure such as dam, etc.
- Water-proof work for the ground of concrete structure.
- Water-proof work for leaking area of underground structure.
- Water-proof work for constructed joint area and cracked area.

Specification

DRIVING SYSTEM	Electric Motor
WEIGHT	29kg
SIZE(L X W X H)	470mm x 430mm x 650mm
POWER	AC220V 1.1KW
MIXTURE RATIO	1:1
HOSE LENGTH	8m x 2
TANK	10L x 2
DISCHARGE PRESSURE	Max. 300kgf/kgf/cm^{2}G (Recommend under 100 kgf/cm^2)
DISCHARGE VOLUME	1L~1.5L/min

ACY-808

Acrylic Agents

Feature

- Double component type grouting pump with high performance(Running by electric motor).
- Pump discharges with accurate 1:1 mixing ratio.
- It is developed for using rapidly-hardening type product.
- It is possible to adjust hardening time by controlling the catalyst amount.
- It is easy to use and move(Portable, 29kg) at job site, and wheel-stopper makes no-move at slope.
- After using, it is easy cleaning up, just by using water.
- It is easy to change spare parts.
- All parts contacting with acryl is made stainless steel.

Technical & Physical Data

FORM	Liquid Type
COLOR	Transparent
VISCOSITY(KS M 3705)	2.7 mPa-s
COMPRESSIVE STRENGTH (KS L 5105)	0.08 N/mm2
SPECIFIC GRAVITY (CUP METHOD) (KS M 3705)	1.03
TENSION-SHEAR ADHESIVE STRENGTH	0.84 N/mm2
TENSILE STRENGTH (KS F 4923)	0.34 N/mm2

PERMEABILITY COEFFICIENT(KS F 2322)	Not Permeability
APPEARANCE	Colorless and Transparent Jelly
PH(20℃)	7.5~9.5
GEL TIME(20℃)	5sec~2min
MIXING RATIO	A agent(20kg) : B agent(20kg) : C catalyst(600g)
SHELF LIFE	1 year when unopened and undamaged
STORAGE CONDITION	Store in a dry cool place
PACKAGING / SET	A agent(20kg) : B agent(powder 350g) : C catalyst(300g)

MPG-24

Mega Power Floor Grinding Machine

MPG-24 (Mega Power Floor Grinder) offers for grinding and polishing floors.
The Floor grinding machine is typically heavier and more active than floor polishers.
It is used to grind several types of floors, but mainly used on the concrete.
The MPG-24 is used to grind down the concrete coatings, and polish the substrate.
The MPG-24 can be used in various application depending on what types of tooling is being used.

Note

Only personnel with the requisite training may operate the machine. It is assumed that the relevant personnel have read the safety regulations. And that the machine is positioned on the surface intended for grinding, that the surface is not inclined and that the grinding disks are mounted.

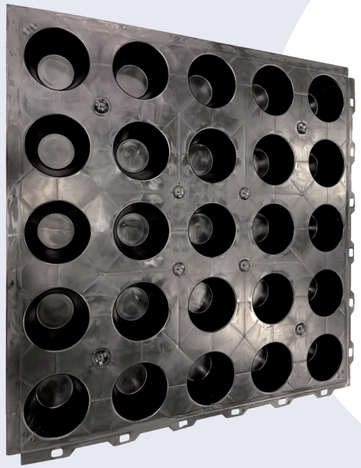
Machine Operation

- The following section describes how to operate and use the grinding machine.
- The section does not deal with the technical aspects of grinding such as choice of grinding tool etc.

Specification

OVERALL SIZE	550 X 1350 X 1100mm
GRINDING WIDTH	550mm
WEIGHT	106kg
POWER	2.6kw / 3HP
VOLTAGE	220V / 50Hz Single Phase 3HP
PERFORMANCE	Max 200m^2 / HR

Floor Waterproof Drain plate



1. Barrier line protruding from the bottom blocks cool temperature delivered from ground moisture to floor concrete, which is excellent in ventilation effect and dew condensation.
2. Product life is permanent and you will be free from incomplete underground waterproof defects.
3. Water PLT (two-layer slab structure) is required for an underground structure.
4. Amount of underground bed excavation and surplus soil will be decreased, construction period and cost reduced.
5. It is more convenient than U-BLOCK for water treatment. Its capillary action blocks moisture rising.
6. It is designed to endure the load sufficiently.

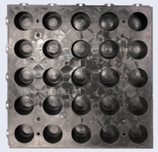
Feature

- When depositing concrete in constant thickness on the basement floor of the building, moisture proof synthetic resin (PP : Polypropylene) is designed for solid work. As it can be simply cut to the shape of a pillar and bending layer, work efficiency improves. Also, to make easy the use of a level rod when depositing concrete, it has uniform check grooves in a constant depth and is made to enable height adjustment.
- Permanent prevention of leakage and dew condensation.
- Use of a level rod when depositing concrete. (Application for utility model)
- Solid product sustains heavy load.
- Simple and economical work.
- Designed as a dotted type. (Application for utility model)
- Insulation support by securing air vent space.

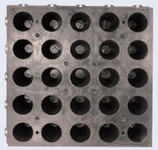
Usage

- Disposal of infiltrating water and dew.
- Underground structures.
- Machine room storage facilities, Tunnels, Parking lots, Swimming pools, Underground floors, Bunkers, Ammunition depots, etc.
- Public Facilities (Government Offices, Schools)

Technical & Physical Data

30T TYPE		
	Width	500mm
	Length	500mm
	Height	30mm
	Usage per m^2	4 sheets
	Filled with concrete amount in the leg-shaped CON part per m^2	0.0070m^3

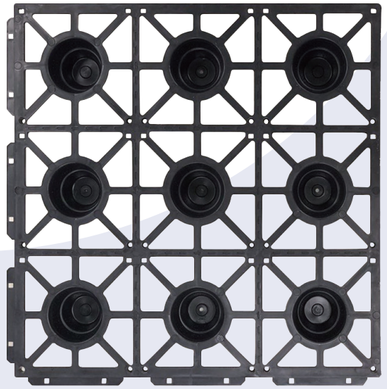
45T TYPE		
	Width	500mm
	Length	500mm
	Height	45mm
	Usage per m^2	4 sheets
	Filled with concrete amount in the leg-shaped CON part per m^2	0.0125m^3

70T TYPE		
	Width	500mm
	Length	500mm
	Height	70mm
	Usage per m^2	4 sheets
	Filled with concrete amount in the leg-shaped CON part per m^2	0.0165m^3

Wall Drain Plate

Advanced construction material to resolve leakage and dew condensation at underground structures

- Resolves underground condensation and waterproof failures.
- Shorter construction period and economical work.
- Diverse design and excellent appearance.
- Low absorption rate really suitable for ground condensation proof wall.
- Use of flammable raw materials, secure from the risk of fire.



Features

- Eco-friendly due to no defect repair against leakage or condensation
- Simple assembly and easy work due to light weight
- Impact resistant and semi-permanent due to excellent
-Simple work and repair

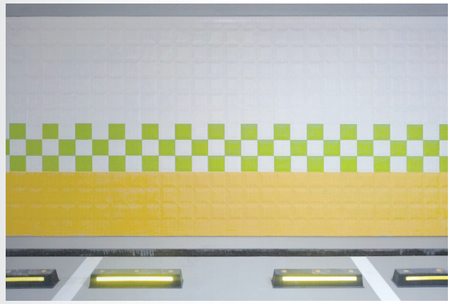
Usage

It is equipped with double wall to solve the problem of the water leak and condensation on the construction wall in the underground.

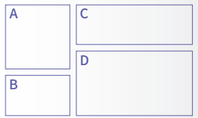
Technical & Physical Data

COMPARISON WITH EXISTING CONSTRUCTION METHODS		
ITEM	Conventional block stacking work.	Drain plate work for underground wall.
MAIN INGREDIENTS	Cement, Sand, Water	High strength synthetic resin +Compound
CONSTRUCTION PERIOD	Long construction period due to multiple processes and winter work unavailable.	Simple process and shorter construction period.
WORKABILITY	Wet process makes site management difficult.	Easy work and proper site management.
FINISH	A separate finish after curing makes construction period longer.	Excellent appearance does not require a separate finish.
REPAIR	Difficult repair against cracks.	Partial repair against cracks is possible due to excellent strength.

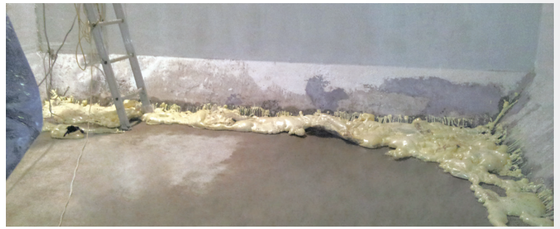
Construction

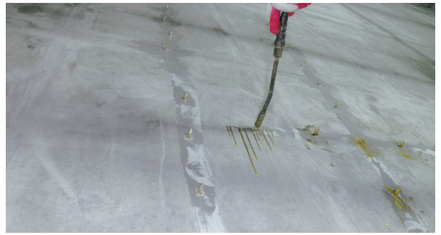


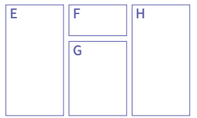
Field Working Site



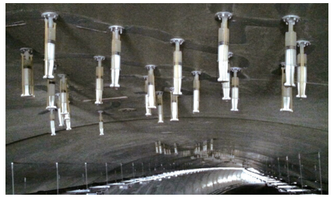
A. Quick setting **B.**Quick setting **C.** Quick setting **D.** Quick setting

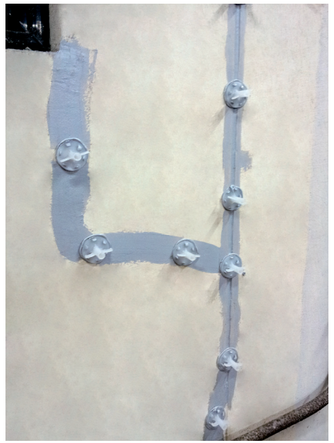






E. Quick setting **F.**Quick setting **G.** Quick setting **H.** Quick setting





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WATERPROOF
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