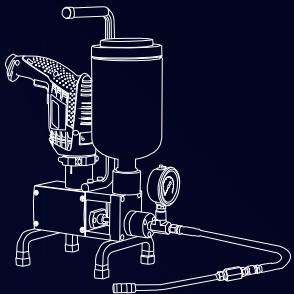


# SAMWON TUKSU



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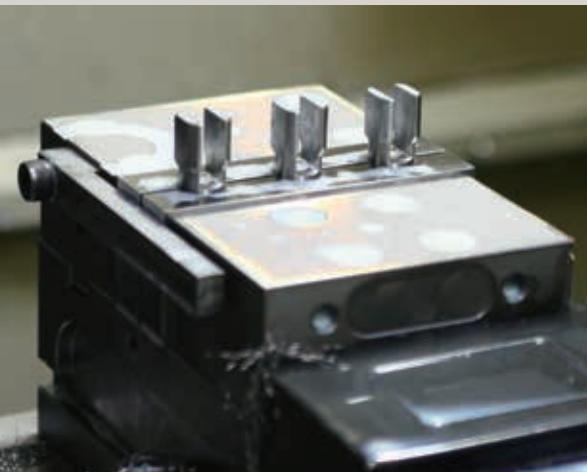


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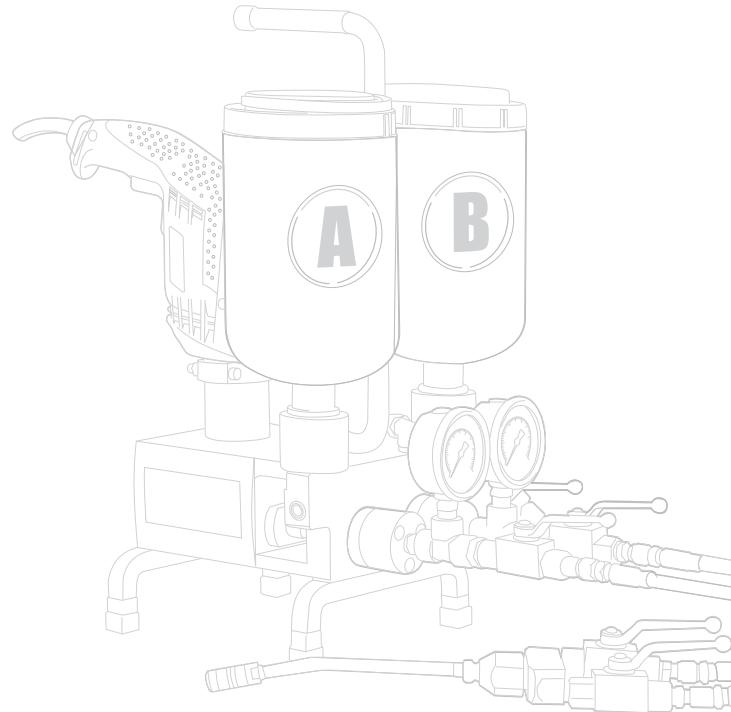
# World Technology Global Leader

We would like to truly appreciate your constant interest and support.  
I am pleased to have an opportunity to introduce our company's general business work to you.

항상 저희 삼원특수주식회사를 아껴주시는 고객 여러분께 진심으로 감사를 드리며  
저희 회사의 사업내용을 소개해 드릴 수 있는 기회를 갖게 되어 매우 기쁘게 생각합니다.



## Certifications



## History

2016. 02	CE인증 / Get a quotation from CE	2007. 11	산업자원부장관표창 (수출탑선정) Awards from Ministry of Commerce, Industry and Energy
2015. 12	대전광역시장수출포장 Received the Daejeon City Mayor's Award for Expert	2007. 06	기술개발사업 참여 (중소기업청) Participated in technological innovation development work (The Small and Medium Business Administration)
2015. 10	ARC펌프특허획득 / ARC pump patent	2007. 05	KOTRA TAIPEI 지사화사업 / The project for KOTRA Taipei branch office
2013. 12	삼원특수(주) 공장 증축 & CrackQ 상품등록 Expansion of Samwon Tuksu Factory & Registered Crack Q	2007. 05	공장 신축완료 / New factory construction was finished
2013. 06	사  사회적기업결연 Sponsorship for one of social enterprise	2007. 04	EXPORT CLUB 참여 (대전 중소기업청) Joined EXPORT CLUB membership in Daejeon city, Chungnam province (The Small and Medium Business Administration)
2011. 12	수출유공자 표창수상(대전시장) Awarded a man of export merit (Major of Daejeon City)	2007. 02	연구개발전담부 신설(한국산업 기술진흥협회 인증) Organize the part which is responsible for research and development (Quotation by KOITA)
2011. 04	CE인증/ Get a quotation from CE	2006. 10	공장신축부지 매입 Buy new factory landing place.
2010. 04	“New Exporters 300” 기업선정 / Selected as “New Exporters 300		
2009. 12	충청 TODAY 8면 전면기사 Chong-chung today news paper written by story 8 page.		
2009. 02	벤처등록 & 인젝션펌프 특허등록 Registration of Venture business & Injection pump patent		

Since 1990, our company has been concentrating on only concrete building leakage, repair and maintenance.

Through operating many kinds of leakage such as building, engineering works, and road, Construction leakage under the 40m of sea, We have been operating construction works based on belief of the best specialist in all kinds of leakage, repair and maintenance.

Based on that belief, we have visited many factories for study all over the world. In the meantime, based on accumulated construction experience and delicate and excellent material, we would strive to meet & satisfy customer's need and support.

Through accumulated know-how and experience, we would go to international market We deeply recognize that our achievement is from all your support and interest Therefore, We would strive to become a company giving customer trust and confidence constantly.

저희 삼원특수 주식회사는 1990년부터 콘크리트 구조물의 누수 및 보수보강에만 전념하여 왔습니다. 바다 40m속에 있는 구조물의 누수부터 건축, 토목, 기계 설비 교량의 각 분야의 균열과 누수 및 각종 하자 보수에 최고가 되어야 한다는 신념으로 시공을 진행하였습니다. 그 신념을 바탕으로 세계 여러 나라를 다니면서 구조물의 보수보강의 견학을 하였습니다.

그동안 수많은 시공경험과 엄선된 재료로 고객 여러분의 성원에 보답을 드리겠으며, 저희 회사의 축적된 노하우와 경험을 토대로 해외진출의 길을 열겠습니다. 이 모든 것이 고객 여러분의 뜨거운 격려와 성원으로 이루어진 것임을 깊이 인식하고 믿음을 주는 유일업체가 되도록 최선을 다해 고객 여러분께 보답하겠습니다.



2006. 06	수출유망중소기업 지정(중소기업청) Selected as a promising mid-size company in export side by the small and medium business administration	2003. 03	인도네시아지사설립 Open a branch office in Indonesia
2005. 11	ISO인증 취득 Get a quotation from ISO	1999. 04	미국 Special -T기술도입 Introduce the Special-T technology from U.S.
2005. 11	제 1공장 설립 및 생산 개시 Establishment of the first factory and start producing	1999. 03	무역업 등록 Register as a trade society business
2005. 10	대전광역시 WTA 우수상 수상(Russia NOVOSIBIRSK) Get a prize of WTA from Daejeon city Gov. (Russia NOVOSIBIRSK)	1996. 11	Con'c 구조물 보수보강 연구회 대전충남지부 지정 Selected as a Daejeon-Chungnam branch of Con'c structure repair & reinforcement research group
2005. 02	시설물 유지관리업 취득 Get permission for preservation and management of the facilities.	1996. 07	삼원특수㈜ 법인전환 Change the company as a corporation aggregate
2004. 11	대전충남부역상사 협의회 운영위원회 지정(KITA) Selected as a steering company by KITA Daejeon-Chungnam branch office	1996. 04	독일 쿠바스그룹 보수보강 기술도입 Introduce repair and reinforcement technology from Kuvasz Group (Germany)

# SINGLE-LINE MANUAL PUMP SWHM-100

## ● DELIVERY RANGE

Pressure gauge unit with 0-250bar, 4m material hose(NO.04) Ø6.4mm and high pressure ball valve with mouth piece, 2ℓ material container transparent



## ● ADVANTAGES

Pump body of Anodizing Aluminium, stainless steel and electric powder coating support

## ● TECHNICAL DATE

Working pressure	0 - 200 bar
Delivery(stroke)	5 cm <sup>3</sup>
Weight	12.5 kg
Width/Length/Height-Working position	45/89/72-110 cm



## ● DESCRIPTION

- The robust compact manual reciprocating pump is ideal for short-time service
- Easy operation and cleaning
- The protection gauge unit is an option

## ● MATERIAL TO BE USED

- EP resin
- PUR resin
- SPUR foam

# SINGLE-LINE MANUAL PUMP SWHM-110

## ● DELIVERY RANGE

Pressure gauge unit with 0-250bar, 4m material hose(NO.04) Ø6.4mm and high pressure ball valve with mouth piece, 6ℓ material stainless steel container



## ● ADVANTAGES

Pump body of anodizing aluminium, stainless steel and electric powder coating support

## ● TECHNICAL DATE

Working pressure	0 - 200 bar
Delivery(stroke)	5 cm <sup>3</sup>
Weight	14.2 kg
Width/Length/Height-Working position	45/98/80-110 cm



## ● DESCRIPTION

- The robust compact manual reciprocating pump is ideal for short-time service
- Easy operation and cleaning
- The protection gauge unit is an option

## ● MATERIAL TO BE USED

- EP resin
- PUR resin
- SPUR foam

# SINGLE-LINE INJECTION PUMP SWM-1000

## ● DELIVERY RANGE

Drive, pressure gauge unit with 0-700bar(0~10,000psi), 4m high pressure material Nitta Moore hose(NO.02) Ø3.6mm, 2ℓ material container transparent



## ● ADVANTAGES

- The pump is small and light
- Easy operation and cleaning

## ● TECHNICAL DATE

Working pressure	0 - 350 bar
Delivery(stroke)	0.35ℓ/min
Weight	8.5 kg
Width/Length/Height	20/37/47 cm
Supply / Moter Power	AC 220V 60Hz / 500W



## ● DESCRIPTION

- Cylinder standard : Ø8mm (0.33~0.35ℓ/min)
- Delivery rate of growth : Ø10mm (0.55~0.58ℓ/min)
- The protection gauge unit is an option

## ● MATERIAL TO BE USED

- Epoxy resin
- PUR resin
- SPUR foam

# SINGLE-LINE AQUEOUS SOLUTION INJECTION PUMP SWM-1200

## ● DELIVERY RANGE

Pressure gauge 0-700bar(0~10,000psi), 4m material Nitta Moore hose(NO.03) Ø4.8mm,  
High pressure ball valve with mouth piece, 2ℓ material container



## ● ADVANTAGES

- The pump is small and light
- Easy operation and cleaning
- Easy adjustment of pressure and flow rate

## ● TECHNICAL DATE

Working pressure	0 - 350 bar
Delivery(stroke)	0.55ℓ/min
Weight	10.0 kg
Width/Length/Height	20/37/50 cm
Supply / Moter Power	AC 220V 60Hz / 650W
Speed controller	0 - 10 change of speed

## ● DESCRIPTION

- You can put the controller on your belt and adjust pressure and flow rate
- Speed & pressure control is depending on field conditions
- The protection gauge unit is an option

## ● MATERIAL TO BE USED

- Aqueous solution




# SINGLE-LINE INJECTION PUMP SWM-1300

## ● DELIVERY RANGE

Drive, pressure controll with return and pressure gauge unit with manometer 0-600bar.  
4m material hose(NO.04) Ø6.4mm and high pressure ball valve with mouth piece, 2ℓ material container.



## ● ADVANTAGES

- The pump is small and light
- Easy operation and cleaning
- Easy adjustment of pressure and flow rate

## ● TECHNICAL DATE

Working pressure-infinitely variable	10 - 350 bar
Delivery(stroke)	0.55ℓ/min
Weight	8.9 kg
Width/Length/Height	20/37/47 cm
Supply / Moter Power	AC 220V 60Hz / 650W



## ● DESCRIPTION

- The small, compact, powerful reciprocating pump
- Speed & pressure control is depending on field conditions

## ● MATERIAL TO BE USED

- Epoxy & PUR resin
- SPUR foam

# SINGLE-LINE INJECTION PUMP SWM-1500

## ● DELIVERY RANGE

Drive, pressure controll with return and Oil protection pressure gauge unit with manometer 0-400bar.  
4m material hose Ø6.4mm and high pressure ball valve with mouth piece,  
6l material stainless steel container.



## ● ADVANTAGES

- The pump is small and light
- Easy operation and cleaning
- Easy adjustment of pressure and flow rate

## ● TECHNICAL DATE

Working pressure-infinitely variable	5 - 250 bar
Delivery(stroke)	1.0l/min
Weight	15.5 kg
Width/Length/Height	33/60/53 cm
Supply / Moter Power	AC 220V 60Hz / 750W

## ● DESCRIPTION

- The small, compact, powerful reciprocating vacuum pump
- Speed & pressure control is depending on field conditions

## ● MATERIAL TO BE USED

- Epoxy & PUR resin
- SPUR foam
- Aqueous solution




# SINGLE-LINE INJECTION PUMP SWM-1600

## ● DELIVERY RANGE

Drive, pressure controll with return and Oil protection pressure gauge unit with manometer 0-400bar.  
4m material hose Ø6.4mm and high pressure ball valve with mouth piece,  
6l material stainless steel container.



## ● ADVANTAGES

- The pump is small and light
- Easy operation and cleaning
- Easy adjustment of pressure and flow rate

## ● TECHNICAL DATE

Working pressure-infinitely variable	5 - 200 bar
Delivery(stroke)	1.7l/min
Weight	15.5 kg
Width/Length/Height	33/60/53 cm
Supply / Motor Power	AC 220V 60Hz / 750W



## ● DESCRIPTION

- The small, compact, powerful reciprocating vacuum pump
- Speed & pressure control is depending on field conditions

## ● MATERIAL TO BE USED

- Epoxy & PUR resin
- SPUR foam
- Aqueous solution

# SINGLE-LINE INJECTION PUMP SWM-1700

## ● DELIVERY RANGE

Drive, pressure controll with return and Oil protection pressure gauge unit with manometer 0-160bar.  
 4m material hose Ø6.4mm and high pressure ball valve with mouth piece,  
 6ℓ material stainless steel container.



## ● ADVANTAGES

- The pump is small and light
- Easy operation and cleaning
- Easy adjustment of pressure and flow rate

## ● TECHNICAL DATE

Working pressure-infinitely variable	5 - 100 bar
Delivery(stroke)	4.0ℓ/min
Weight	16.0 kg
Width/Length/Height	33/60/53 cm
Supply / Moter Power	AC 220V 60Hz / 750W

## ● DESCRIPTION

- The small, compact, powerful reciprocating vacuum pump
- Speed & pressure control is depending on field conditions

## ● MATERIAL TO BE USED

- Epoxy & PUR resin
- SPUR foam
- Aqueous solution



# SINGLE-LINE INJECTION PUMP MCP-1800

## ● DELIVERY RANGE

Drive, pressure controll with return and Oil protection pressure gauge unit with manometer 0-160bar.  
4m material hose Ø6.4mm and high pressure ball valve with mouth piece.



## ● ADVANTAGES

- Pump body is anodizing Aluminium
- Exact adjustment of pressure
- Easy operation and cleaning

## ● TECHNICAL DATE

Working pressure-infinitely variable	5 - 100 bar
Delivery(stroke)	4.0ℓ/min
Weight	13.3 kg
Width/Length/Height	33/45/52 cm
Supply / Motor Power	AC 220V 60Hz / 750W



## ● DESCRIPTION

- Can be use with 30ℓ material container(option)
- Speed & pressure control is depending on field conditions

## ● MATERIAL TO BE USED

- Aqueous solution
- Micro Cement milk resin

# SINGLE-LINE INJECTION PUMP MCP-1900

## ● DELIVERY RANGE

Drive, pressure controll with return and Oil protection pressure gauge unit with manometer 0-160bar.  
4m material hose Ø6.4mm and high pressure ball valve with mouth piece.



## ● ADVANTAGES

- Can be use with only MCP-1800
- Stainless steel container

## ● TECHNICAL DATE

Rated voltage single phase	100V / 220V
Power frequency	50/60 Hz
Weight	12 kg
Width/Length/Height	34/38/82 cm
Operational temperature range	0 ~ 40°
Storage temperature range	-10 ~ 60°
Operational humidity range	85%RH or lower(atnocondensation)
Rotaional speed	50Hz 0~500RPM(14.6kg-cm)
Rotaional speed	60Hz 0~600RPM(18.2kg-cm)
Mixer capacity	30l



## ● MATERIAL TO BE USED

- Aqueous solution
- Micro Cement milk resin

# SINGLE-LINE AIR INJECTION PUMP AIR-4000

## ● DELIVERY RANGE

Drive, pressure gauge unit with 0-400bar, 4m material hose Ø6.4mm and high pressure ball valve with mouth piece, 6ℓ material stainless steel container.



## ● ADVANTAGES

- Exact adjustment of pressure
- Easy operation and cleaning
- Airless pump

## ● TECHNICAL DATE

Pressure ratio	48:1
Operationg air pressure	3~6.5 bar
Max delivery	2.5ℓ/min
Max discharge pressure	310 bar(4,500psi)
Width/Length/Height-Working position	60/45/90 cm
Weight	30 kg



## ● MATERIAL TO BE USED

- PUR resin
- SPUR foam
- Aqueous solution

# COMPONENT

## SINGLE-LINE

### ● INJECTION GUN

- Allowable pressure 0-250bar



Variant	Unit	No
Injection Gun 1/4" NPT	indv	13030

#### ◆ APPLICABLE PUMP MODEL

- SWM-1300
- SWM-1500
- SWM-1600
- SWM-4000

#### ◆ ADVANTAGE/INFORMATION

- One touch coupling is an option
- SWM-1700
- SWM-1800
- SWM-1900

### ● INJECTION GUN

- Allowable pressure 0-700bar



Variant	Unit	No
Injection Gun 1/4" NPT	indv	13031

#### ◆ APPLICABLE PUMP MODEL

- SWM-1300
- SWM-1500
- SWM-1600
- SWM-4000

#### ◆ ADVANTAGE/INFORMATION

- One touch coupling is an option
- SWM-1700
- SWM-1800
- SWM-1900

### ● INJECTION GUN

- Allowable pressure 0-500bar



Variant	Unit	No
Ball valve	indv	13032

#### ◆ APPLICABLE PUMP MODEL

- SWM-1000
- SWM-1200

### ● INJECTION GUN



Variant	Unit	No
'T' Ball valve	indv	13033

#### ◆ APPLICABLE PUMP MODEL

- SWM-1000
- SWM-1200

# COMPONENT

## SINGLE-LINE

### ● INJECTION GUN



### ● INJECTION GUN



Variant	Unit	No
Ball valve	indv	13034

◆ APPLICABLE PUMP MODEL

- SWM-1000
- SWM-1200

Variant	Unit	No
Injection Gun 1/4" NPT	indv	15030

◆ APPLICABLE PUMP MODEL

- SWM-1300
- SWM-1500
- SWM-1600
- SWM-4000

### ● INJECTION GUN



### ● INJECTION GUN



Variant	Unit	No
Ball valve, 1/4" NPT	indv	17030

◆ APPLICABLE PUMP MODEL

- SWM-1700
- SWM-1800
- SWM-1900

Variant	Unit	No
Ball valve, 1/4" NPT	indv	13035

◆ APPLICABLE PUMP MODEL

- SWM-1300
- SWM-1500
- SWM-1600
- SWM-4000

# COMPONENT

## SINGLE-LINE

### ● INJECTION GUN



Variant	Unit	No
Injection Gun 1/4" NPT	indv	13036

◆ APPLICABLE PUMP MODEL  
 • SWM-1000    • SWM-1200

### ● INJECTION GUN



Variant	Unit	No
Cook ball valve gun	indv	13037

◆ APPLICABLE PUMP MODEL  
 • SWM-1000    • SWM-1200

### ● INJECTION GUN



Variant	Unit	No
'ㄱ' Valve set	indv	13038

◆ APPLICABLE PUMP MODEL  
 • SWM-1000    • SWM-1200

### ● INJECTION WHIP



Variant	Unit	No
Hose length 30cm	indv	13039

# COMPONENT

## SINGLE-LINE

### ● MATERIAL HOSE STEEL

- High pressure hose
- Max operating 380 bar / Min burst 1,400 bar



Variant	Unit	No
Nitta Moore 02 Ø3.4mm, 5m Long 7/16"~7/16"	indv	13028
Nitta Moore 02 Ø3.4mm, 5m Long 7/16"~7/16"	indv	13029

#### ◆ APPLICABLE PUMP MODEL

- SWM-1000
- SWDM-2100(B)

### ● MATERIAL HOSE STEEL

- High pressure hose
- Max operating 380 bar / Min burst 1,400 bar



Variant	Unit	No
Nitta Moore 03 Ø4.8mm, 5m Long 7/16"~7/16"	indv	13026
Nitta Moore 03 Ø4.8mm, 4m Long 7/16"~7/16"	indv	13027

#### ◆ APPLICABLE PUMP MODEL

- SWM-1000
- SWM-1200
- SWDM-2000
- SWDM-2100(A)

### ● MATERIAL HOSE STEEL

- High pressure hose
- Max operating 430 bar / Min burst 1,290 bar



Variant	Unit	No
PSH 04 Ø6.4mm 5m Long 3/8"PF ~ 1/4"NPT	indv	13024
PSH 04 Ø6.4mm 4m Long 3/8"PF ~ 1/4"NPT	indv	13025

#### ◆ APPLICABLE PUMP MODEL

- SWHM-100
- SWHM-110
- SWHM-200
- SWM-1500
- SWM-1600
- SWM-1700
- AIR-4000
- MCP-1800
- MCP-1900

Variant	Unit	No
PSH 04 Ø6.4mm 5m Long 3/8"PF ~ 3/8"PF	indv	50028
PSH 04 Ø6.4mm 4m Long 3/8"PF ~ 3/8"PF	indv	50029

#### ◆ APPLICABLE PUMP MODEL

- AIR-5000

### ● MATERIAL HOSE STEEL

- High pressure hose
- Max operating 430 bar / Min burst 1,290 bar



Variant	Unit	No
PSH 04 Ø6.4mm, 5m Long 7/16"~7/16"	indv	10020
PSH 04 Ø6.4mm, 4m Long 7/16"~7/16"	indv	10021

#### ◆ APPLICABLE PUMP MODEL

- SWM-1000
- SWM-1200
- SWDM-2200
- SWDM-2300

Variant	Unit	No
PSH 04 Ø6.4mm, 5m Long 1/4"NPT ~1/4"NPT	indv	13022
PSH 04 Ø6.4mm, 4m Long 1/4"NPT ~1/4"NPT	indv	13023

#### ◆ APPLICABLE PUMP MODEL

- SWM-1300

# COMPONENT

## SINGLE-LINE

### ● NIPPLE



Variant	Unit	No
1/4"PF ~ 3/8"PF steel double nipple	indv	13050

### ● ARC CYLINDER



Variant	Unit	No
Ø10mm phosphor bronze & stainless steel	indv	30045

#### ◆ APPLICABLE PUMP MODEL

- SWM-1200
- ARC-3000

### ● NIPPLE



Variant	Unit	No
1/4"PF ~ 1/4"NPT steel double nipple	indv	13051

### ● CYLINDER

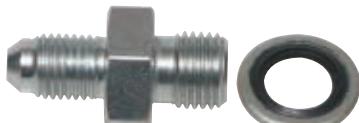


Variant	Unit	No
Cylinder Ø7.4mm Brass	indv	10044

#### ◆ APPLICABLE PUMP MODEL

- SWDM-2100
- SWDM-2300

### ● SOCKET



Variant	Unit	No
7/16"PF x 1/4"PF steel	indv	13052

#### ◆ APPLICABLE PUMP MODEL

- SWM-1000
- SWM-1300
- SWDM-2000
- SWDM-2200

Variant	Unit	No
Cylinder Ø10mm Brass	indv	10046

#### ◆ APPLICABLE PUMP MODEL

- SWDM-2100
- SWDM-2300

# COMPONENT

## SINGLE-LINE

### ● CYLINDER



### ● CYLINDER



Variant	Unit	No
Cylinder Ø 20mm (stainless steel & phosphor bronze)	indv	15008

◆ APPLICABLE PUMP MODEL

- SWHM-100      • SWHM-110
- SWM-1700      • MCP-1800
- ARCH-300      • ARC-3300

Variant	Unit	No
Cylinder Ø12mm (phosphor bronze)	indv	15006

◆ APPLICABLE PUMP MODEL

- SWM-1500      • ARC-3100

Variant	Unit	No
Cylinder Ø15mm (phosphor bronze & stainless steel)	indv	15007

◆ APPLICABLE PUMP MODEL

- SWM-1600      • ARC-3200

### ● INBALE CHECK VALVE



### ● DISCHARGE CHECK VALVE



Variant	Unit	No
Ball check valve (stainless steel)	indv	15005

◆ APPLICABLE PUMP MODEL

- SWHM-100      • SWHM-110
- SWM-1500      • SWM-1600
- MCP-1800      • ARCH-300
- ARC-3200      • ARC-3300

Variant	Unit	No
Ball check valve (stainless steel)	indv	15020

◆ APPLICABLE PUMP MODEL

- SWHM-100      • SWHM-110      • SWHM-200
- SWM-1500      • SWM-1600      • SWM-1700
- MCP-1800      • ARCH-300      • ARC-3100
- ARC-3200      • ARC-3300

# COMPONENT

## SINGLE-LINE

### ● AIR VENT CONTROLLER



Variant	Unit	No
Anodizing aluminium & steel	indv	15021

#### ◆ APPLICABLE PUMP MODEL

- SWHM-100      • SWHM-110      • SWM-1500
- SWM-1600      • SWM-1700      • SWM-1800

### ● PRESSURE CONTROLLER



Variant	Unit	No
Anodizing aluminium & steel	indv	15026

#### ◆ APPLICABLE PUMP MODEL

- SWM-1300      • SWM-1500      • SWM-1600
- SWDM-2200      • SWDM-2300

### ● PRESSURE CONTROLLER



Variant	Unit	No
	indv	33026

#### ◆ APPLICABLE PUMP MODEL

- SWM-1700      • MCP-1800      • MCP-1900
- ARC-3300

### ● NIPPLE



Variant	Unit	No
1/4"PF steel turning double nipple	indv	15022

# COMPONENT

## SINGLE-LINE

### ● SOCKET



### ● NOZZLE



Variant	Unit	No
T- steel socket	indv	18020

Variant	Unit	No
steel	indv	10057

- ◆ APPLICABLE PUMP MODEL
  - MCP-1800

### ● CONTAINER



### ● CONTAINER



Variant	Unit	No
6ℓ stainless steel container	indv	15001

Variant	Unit	No
2ℓ plastic bottle	indv	10001

# COMPONENT

## SINGLE-LINE

### GAUGE



### GAUGE



Variant	Unit	No
Oil protection gauge unit	indv	15025
Fitting TAPE 400bar		

Variant	Unit	No
Oil protection gauge unit	indv	13045
1/4"PF turning nipple TAPE 600bar		

◆ APPLICABLE PUMP MODEL

- SWM-1500
- SWM-1600

Variant	Unit	No
Oil protection gauge unit	indv	18026
Fitting TAPE 160bar		

◆ APPLICABLE PUMP MODEL

- SWM-1300

◆ APPLICABLE PUMP MODEL

- MCP-1800
- MCP-1900
- SWM-1700

### GAUGE



### GAUGE



Variant	Unit	No
Oil protection gauge unit	indv	10002
1/4" PT 600bar		

Variant	Unit	No
Oil protection gauge unit 250bar	indv	10025

◆ APPLICABLE PUMP MODEL

- SWM-1000
- SWM-1200
- SWDM-2000
- SWDM-2100
- SWDM-2200
- SWDM-2300
- ARC-3000

◆ APPLICABLE PUMP MODEL

- SWHM-100
- SWHM-110
- SWHM-200

# COMPONENT

## SINGLE-LINE

### ● FILTER



### ● FILTER



Variant	Unit	No
Stainless steel	indv	10033

Variant	Unit	No
Stainless steel	indv	10032

### ● CLEANING OIL



Variant	Unit	No
Cleaning oil	indv	10060

### ● CONTROLLER

- Drill speed controller
- Machine installation



Variant	Unit	No
AC 220V(50Hz, 60Hz)	indv	11003

#### ◆ APPLICABLE PUMP MODEL

- SWM-1200
- SWDM-2000
- SWDM-2100

#### ◆ ADVANTAGE/INFORMATION

- Change speed extent : 0~10
- Rated voltage : AC220V(50Hz, 60Hz)
- Output voltage : AC220V 10A 2KVA(0~220V)

# DOUBLE-LINE MANUAL PUMP SWHM-200

## ● DELIVERY RANGE

Hand lever, fork-shaped piece, 2x2ℓ material container transparent,  
 2x4m material hose Ø 6.4mm, two components mixing head



## ● ADVANTAGES

- The two components Mixing head
- Pump body of Aluminium, stainless steel and electric powder coating support

## ● TECHNICAL DATA

Working pressure	0 - 150 bar
Delivery(stroke)	2x5 (10cm <sup>3</sup> )
Mixing ratio	1:1
Weight	16.0 kg
Width/Length/Height-Working position	45/89/72-110 cm

## ● DESCRIPTION

- The robust compact manual reciprocating pump is ideal for short-time service
- Easy operation and cleaning
- The protection gauge unit is an option

## ● MATERIAL TO BE USED

- 2-components injection resin
- PUR resin
- SPUR foam



# DOUBLE-LINE INJECTION PUMP SWDM-2000

## ● DELIVERY RANGE

Drive, two pressure gauge units with 0-700bar(0~10,000psi), 2x4m material hose(NO.03) Ø 4.8mm, two components mixing head and 2x2ℓ material container transparent.

Double-line liquid type high strength polyurethane injection taking a short time to harden



## ● ADVANTAGES

- Two components Mixing head
- The pump is small and light
- Easy operation and cleaning

## ● TECHNICAL DATE

Working pressure	0 - 250 bar
Delivery(stroke)	2 x 0.35l/min(0.7ℓ/min)
Mixing ratio	1:1
Weight	12.0 kg
Width/Length/Height	32/45/47 cm
Supply / Motor Power	AC 220V 60Hz / 650W



## ● DESCRIPTION

- Cylinder standard : 2 x Ø8mm (0.35ℓ/min x 2), 0.7ℓ/min
- Delivery rate of growth : 2 x Ø10mm (0.55ℓ/min x 2), 1.1ℓ/min
- Speed controller is an option
- The protection gauge unit is an option

## ● MATERIAL TO BE USED

- PUR resin • SPUR foam

# DOUBLE-LINE INJECTION PUMP SWDM-2100

## ● DELIVERY RANGE

Drive, two pressure gauge units with 0-700bar(0~10,000psi). 2x4m material hose (A:NO.03)Ø4.8mm / (B:NO.02)Ø3.6mm, Two components mixing head and 2x2ℓ material container transparent.



## ● ADVANTAGES

- Two components Mixing head
- The pump is small and light
- Easy operation and cleaning

## ● TECHNICAL DATE

Working pressure	0 - 250 bar
Delivery(stroke)	0.84l/min
Mixing ratio	2:1 (A:0.56ℓ/min B:0.28ℓ/min)
Weight	12.0 kg
Width/Length/Height	32/38/47 cm
Supply / Moter Power	AC 220V 60Hz / 650W

## ● DESCRIPTION

- Speed controller is an option
- The protection gauge unit is an option

## ● MATERIAL TO BE USED

- EPOXY resin
- SPUR foam

## ● INJECTION OF TWO-COMPONENT LIQUID AND CLEANING METHOD 이액형 주입과 세척 방법



주입 [Injection]

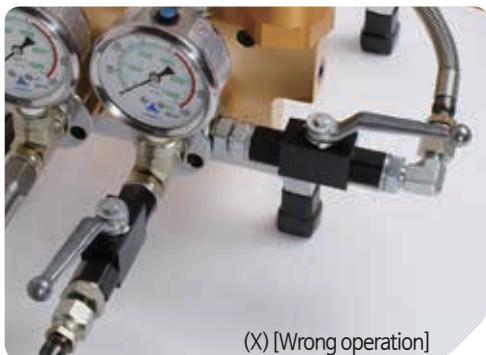


세척 [Cleaning]

The valve shall be always located as shown in the picture at the top. Do not use it for any purposes other than two operations such as injection and cleaning (They are well described in the instruction manual.).

항상 밸브의 위치는 맨위의 그림처럼 하여 주시고, 주입상태와, 오바이트, 즉 세척동작(기계사용설명서에 잘 나와 있음)이 두가지 동작외에는 사용하지 마십시오.

## ● PRECAUTIONS ON THE USE OF THE MACHINE (WRONG OPERATION) 기계 사용시 주의사항(잘 못된 상태)



(X) [Wrong operation]



(X) [Wrong operation]

If you operate (test) the machine with the high pressure valve handle positioned like this, the pressure gauge is in a position of being completely turned momentarily, causing trouble. Therefore, never place the valve handle in the position as shown above.

고압밸브 손잡이 위치가 이러한 상태에서 기계 동작(테스트)을 하시면, 압력계이지가 순간 완전히 돌아간 상태가 되어 고장이 발생하므로 절대 밸브 손잡이 위치를 위의 상태로 동작하지 마십시오. 두가지 동작외에는 사용하지 마십시오.

- If you do not use the machine for the time being at the time of injection (For example, when having a meal), open the recirculation valve (By-Pass), close the B-hardener valve (II-shaped position), and operate the injector. Then, as the A-type liquid chemical is discharged, the liquid chemical is not hardened.
- If you do not use it for a long period of time, clean it as indicated separately so that the liquid chemical cannot be hardened inside the high pressure hose and the injector. In particular, in case of using the epoxy injection agent (steel plate injection agent / low, medium, and high viscosity injection agent), you must clean it always except in the case of operating it every day continuously.
- 주입도중 잠시 기계를 사용치 않을 시(식사시, 기타) 재순환밸브(By-Pass)를 연다음, B경화제 밸브를 잠그고(II자 형태) 주입기를 작동시키면 A주제 약액만 토출되므로 약액이 굳지 않습니다.
- 장기간 사용을 안할 경우는 별도 표기와 같이 청소를 하셔야 고압호스나 주입기 내부가 약액으로 인하여 굳지 않습니다. 특히 에폭시 주입제(철판 주입제/저, 중, 고점도 주입제)를 사용한 경우에는 연일 작업하는 경우를 제외하고는 반드시 청소를 실시하여야만 합니다.

# DOUBLE-LINE INJECTION PUMP SWDM-2200

## ● DELIVERY RANGE

Drive, Two pressure controll with return and pressure gauge units with manometer 0-600bar. 2x4m material hose(NO.04) Ø6.4mm and high pressure ball valve with mouth piece, 2x2ℓ material container. Double-line liquid type high strength polyurethane injection taking a short time to harden



## ● ADVANTAGES

- Easy adjustment of pressure and flow rate
- The pump is small and light
- Easy operation and cleaning

## ● TECHNICAL DATE

Working pressure-infinitely variable	0 - 250 bar
Delivery(stroke)	2 x 0.35ℓ/min(0.7ℓ/min)
Mixing ratio	1:1
Weight	12.0 kg
Width/Length/Height	32/38/47 cm
Supply / Moter Power	AC 220V 60Hz / 750W



## ● DESCRIPTION

- Cylinder standard : 2 x Ø8mm (0.35ℓ/min x 2), 7ℓ/min
- Delivery rate of growth : 2 x Ø10mm (0.55ℓ/min x 2), 1.1ℓ/min
- Speed & pressure control is depending on field conditions
- The protection gauge unit is an option



## ● MATERIAL TO BE USED

- PUR resin
- SPUR foam

# DOUBLE-LINE INJECTION PUMP SWDM-2300

## ● DELIVERY RANGE

Drive, two pressure gauge units with 0-600bar, 2x4m material hose (NO.04)Ø6.4mm, Two components mixing head and 2x2ℓ material container transparent.



## ● ADVANTAGES

- Easy adjustment of pressure and flow rate
- The pump is small and light
- Easy operation and cleaning

## ● TECHNICAL DATE

Working pressure-infinitely variable	0 - 250 bar
Delivery(stroke)	0.84ℓ/min
Mixing ratio	2:1 (A:0.56ℓ/min B:0.28ℓ/min)
Weight	12.0 kg
Width/Length/Height	32/38/47 cm
Supply / Moter Power	AC 220V 60Hz / 750W



## ● DESCRIPTION

- Two components Mixing head
- Speed & pressure control is depending on field conditions
- The protection gauge unit is an option

## ● MATERIAL TO BE USED

- EPOXY resin
- SPUR foam

# DOUBLE-LINE AIR INJECTION PUMP AIR-5000

## ● DELIVERY RANGE

Drive, two pressure gauge units with 0-400bar, 2x4m material hose (NO.04)Ø6.4mm, Two components mixing head and 2x6ℓ material stainless steel container. Double-line liquid type high strength polyurethane injection taking a short time to harden.



## ● ADVANTAGES

- Exact adjustment of pressure
- Easy operation and cleaning
- Airless pump

## ● TECHNICAL DATE

Pressure ratio	48:1
Operationg air pressure	3~7 bar
Mixing ratio	1:1
Max delivery	5ℓ/min
Max discharge pressure	100 bar
Stroke	100 mm
Cycle	60/min
Width/Length/Height	76/50/91 cm
Weight	45 kg



## ● MATERIAL TO BE USED

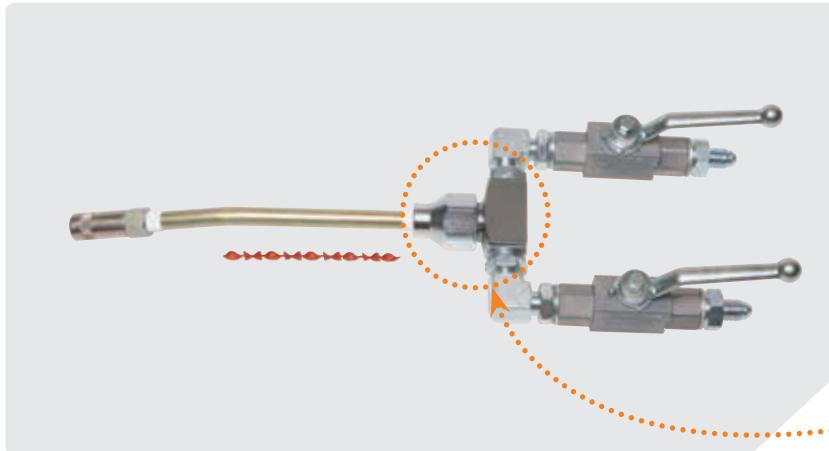
- PUR resin
- SPUR foam
- Aqueous solution



# COMPONENT

## DOUBLE-LINE

### ● INJECTION GUN

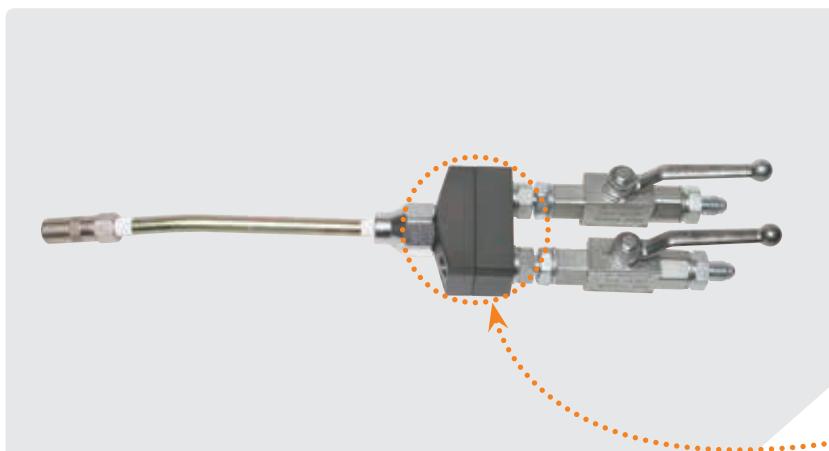


Variant	Unit	No
Steel double gun	indv	20030

#### ◆ APPLICABLE PUMP MODEL

- SWDM-2000
- SWDM-2100

### ● INJECTION GUN



Variant	Unit	No
Steel double gun	indv	20031

#### ◆ APPLICABLE PUMP MODEL MODEL

- SWHM-200
- SWDM-2000
- SWDM-2100
- SWDM-2200
- SWDM-2300

# ACRYLAT GELS



# RESIN MANUAL PUMP ARCH-300

## ● DELIVERY RANGE

Fork-shaped piece, 2x6l material stainless steel container, 2x4m material hose Ø6.4mm, two components mixing head



## ● ADVANTAGES

- The two components Mixing head
- Pump body of Aluminium, stainless steel and electric powder coating support

## ● TECHNICAL DATE

Working pressure	0 - 150 bar
Delivery(stroke)	2x5 (10cm <sup>3</sup> )
Mixing ratio	1:1
Weight	23.5 kg
Width/Length/Height-Working position	57/65/53~110 cm



## ● DESCRIPTION

- The robust and compact manual reciprocating pump
- The pump short-time is service
- Easy cleaning
- The protection gauge unit is an option

## ● MATERIAL TO BE USED

- 2-components injection resin
- Aqueous solution
- Acrylic resin

# ACRYLIC RESIN INJECTION PUMP ARC-3000

## ● DELIVERY RANGE

Drive, two pressure gauge units with 0-600bar, 2x2ℓ material container transparent, 2x4m material hose(NO.04) Ø 6.4mm, two components mixing head



## ● ADVANTAGES

- Two components Mixing head
- The pump is small and light
- Easy operation and cleaning

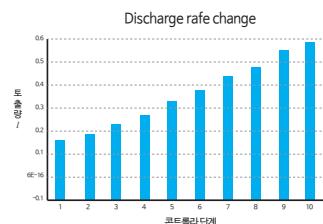


## ● TECHNICAL DATA

Working pressure	0 - 200 bar
Delivery	1.1ℓ/min
Mixing ratio	1:1
Weight	15.0 kg
Width/Length/Height	30/41/47 cm
Speed controller	0 - 10 change of speed

## ● DESCRIPTION

- The pump short-time is service
- Speed & pressure control is depending on field conditions
- The protection gauge unit is an option



## ● MATERIAL TO BE USED

- 2-components injection resin
- Acrylic resin
- Aqueous solution



# ACRYLIC RESIN INJECTION PUMP ARC-3100

## ● DELIVERY RANGE

Drive, two pressure gauge units with 0-400bar, 2x6l material stainless steel container, 2x4m material hose(NO.04) Ø6.4mm, two components mixing head



## ● ADVANTAGES

- Easy adjustment of pressure and flow rate
- The pump is small and light
- Easy operation and cleaning

## ● TECHNICAL DATE

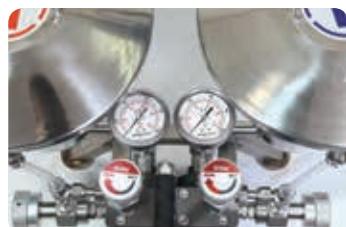
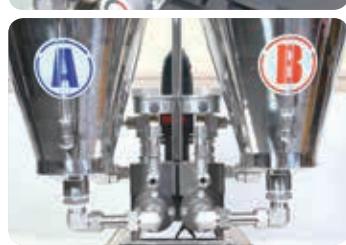
Working pressure-infinitely variable	0 - 150 bar
Delivery	2.0ℓ/min
Mixing ratio	1:1
Weight	22.0 kg
Width/Length/Height	57/65/53 cm

## ● DESCRIPTION

- Oil protection gauge
- Two components Mixing head
- Pressure control is depending on field conditions

## ● MATERIAL TO BE USED

- 2-components injection resin
- Acrylic resin
- Aqueous solution



# ACRYLIC RESIN INJECTION PUMP ARC-3200

## ● DELIVERY RANGE

Drive, two pressure gauge units with 0-250bar, 2x6ℓ material stainless steel container, 2x4m material hose(NO.04) Ø6.4mm, two components mixing head



## ● ADVANTAGES

- Easy adjustment of pressure and flow rate
- The pump is small and light
- Easy operation and cleaning

## ● TECHNICAL DATE

Working pressure-infinitely variable	0 - 80 bar
Delivery	3.4ℓ/min
Mixing ratio	1:1
Weight	22.0 kg
Width/Length/Height	57/65/53 cm

## ● DESCRIPTION

- Oil protection gauge
- Two components Mixing head
- Pressure control is depending on field conditions

## ● MATERIAL TO BE USED

- 2-components injection resin
- Acrylic resin
- Aqueous solution



# ACRYLIC RESIN INJECTION PUMP ARC-3300

## ● DELIVERY RANGE

Drive, two pressure gauge units with 160bar, 2x6ℓ material stainless steel container, 2x4m material hose(NO.04) Ø6.4mm, two components mixing head



## ● ADVANTAGES

- Easy adjustment of pressure and flow rate
- The pump is small and light
- Easy operation and cleaning

## ● TECHNICAL DATE

Working pressure-infinitely variable	0 - 30 bar
Delivery	8.0ℓ/min
Mixing ratio	1:1
Weight	22.0 kg
Width/Length/Height	57/65/53 cm

## ● DESCRIPTION

- oil protection gauge
- Two components Mixing head
- Pressure control is depending on field conditions

## ● MATERIAL TO BE USED

- 2-components injection resin
- Acrylic resin
- Aqueous solution



# COMPONENT

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ACRYLIC-LINE

## ● ARC DOUBLE GUN



## ● ARC DOUBLE GUN



Variant	Unit	No
Anodizing aluminium & stainless steel	indv	30001

◆ APPLICABLE PUMP MODEL

- ARC-300
- ARC-3000

Variant	Unit	No
Stainless steel	indv	33001

◆ APPLICABLE PUMP MODEL

- ARC-3100
- ARC-3200
- ARC-3300
- AIR-5000

## ● STICK MIXER



## ● ARC CYLINDER



Variant	Unit	No
Ø6.5mm plastic mixer 100mm long	indv	20067

◆ APPLICABLE ARC DOUBLE GUN MODEL

- No.30001

Variant	Unit	No
Ø9.4mm plastic mixer 65mm long	indv	20068

◆ APPLICABLE ARC DOUBLE GUN MODEL

- No.33001

Variant	Unit	No
Ø10mm phosphor bronze & stainless steel	indv	30045

◆ APPLICABLE PUMP MODEL

- ARC-3000

SINGLE-LINE PUMP

DOUBLE-LINE PUMP

ACRYLIC RESIN PUMP

PACKER

CHEMICAL

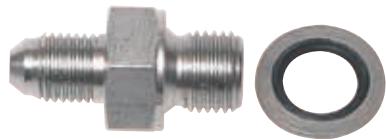
# COMPONENT

## ACRYLIC-LINE

### ● CHECK VALVE



### ● SOCKET



Variant	Unit	No
High pressure stainless steel check valve	indv	30005

- ◆ APPLICABLE PUMP MODEL
  - ARC-3000
- ◆ APPLICABLE ARC DOUBLE GUN MODEL
  - No. 30001
- ◆ APPLICABLE INJECTION GUN MODEL
  - No. 20031

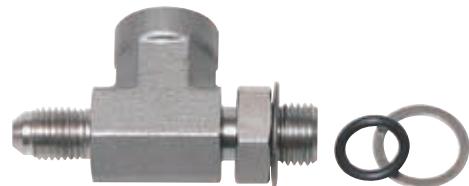
Variant	Unit	No
1/4"PF Stainless steel	indv	30051

- ◆ APPLICABLE PUMP MODEL
  - ARC-3000

### ● NIPPLE



### ● SOCKET



Variant	Unit	No
1/4"PF stainless steel turning double nipple	indv	30062

Variant	Unit	No
T- stainless steel socket	indv	30055

# COMPONENT

---

 ACRYLIC-LINE

## ● CHECK VALVE



Variant	Unit	No
Stainless steel check valve	indv	33002

◆ APPLICABLE ARC DOUBLE GUN MODEL  
 • No. 33001

## ● GAUGE



Variant	Unit	No
Oil protection gauge 400bar	indv	31025

◆ APPLICABLE PUMP MODEL  
 • ARC-3100

Variant	Unit	No
Oil protection gauge 250bar	indv	32026

◆ APPLICABLE PUMP MODEL  
 • SWHM-100     • SWHM-110     • SWHM-200  
 • ARCH-300     • ARC-3200

Variant	Unit	No
Oil protection gauge 160bar	indv	33027

◆ APPLICABLE PUMP MODEL  
 • ARC-3300

## ● PRESSURE CONTROLLER



Variant	Unit	No
Stainless steel	indv	31026

◆ APPLICABLE PUMP MODEL  
 • ARC-3100     • ARC-3200     • ARC-3300

## ● AIR VENT CONTROLLER



Variant	Unit	No
Air Vent(stainless steel)	indv	31021

◆ APPLICABLE PUMP MODEL  
 • ARCH-300     • ARC-3100     • ARC-3200  
 • ARC-3300

# COMPONENT

## ACRYLIC-LINE

### ● MATERIAL HOSE STAINLESS STEEL

- High pressure hose
- Max operating 340 bar / Min burst 1,000 bar



Variant	Unit	No
Nitta Moore 03 Ø4.8mm, 5m Long Stainless Steel	indv	30027
Nitta Moore 03 Ø4.8mm, 4m Long Stainless Steel	indv	30028

#### ◆ APPLICABLE PUMP MODEL

- ARC-3000

### ● MATERIAL HOSE STAINLESS STEEL

- High pressure hose
- Max operating 430 bar / Min burst 1,290 bar



Variant	Unit	No
PSH 04 Ø6.4mm Stainless Steel 5m Long 7/16"~7/16"	indv	30025
PSH 04 Ø6.4mm Stainless Steel 4m Long 7/16"~7/16"	indv	30026

#### ◆ APPLICABLE PUMP MODEL

- ARC-3000

### ● MATERIAL HOSE STAINLESS STEEL

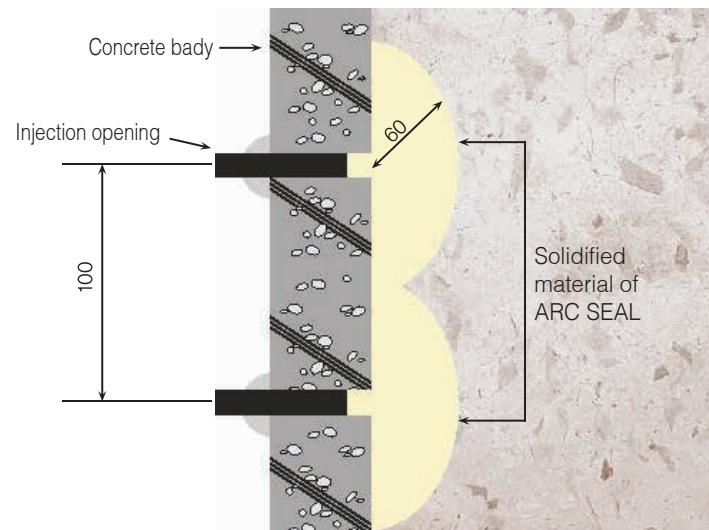
- High pressure hose
- Max operating 430 bar / Min burst 1,290 bar



Variant	Unit	No
PSH 04 Ø6.4mm Stainless Steel 5m Long 3/8"PF ~ 3/8"PF	indv	33021
PSH 04 Ø6.4mm Stainless Steel 4m Long 3/8"PF ~ 3/8"PF	indv	33022

#### ◆ APPLICABLE PUMP MODEL

- ARC-3100
- ARC-3200
- ARC-3300
- AIR-5000

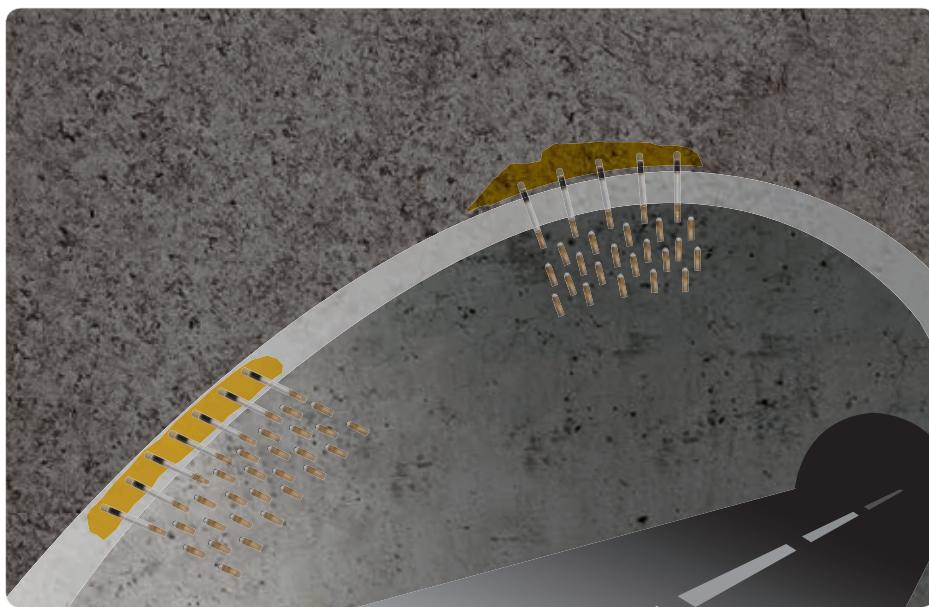


ARC SEAL BACK INJECTION METHOD

# CONSTRUCTION WORK, EXAMPLE

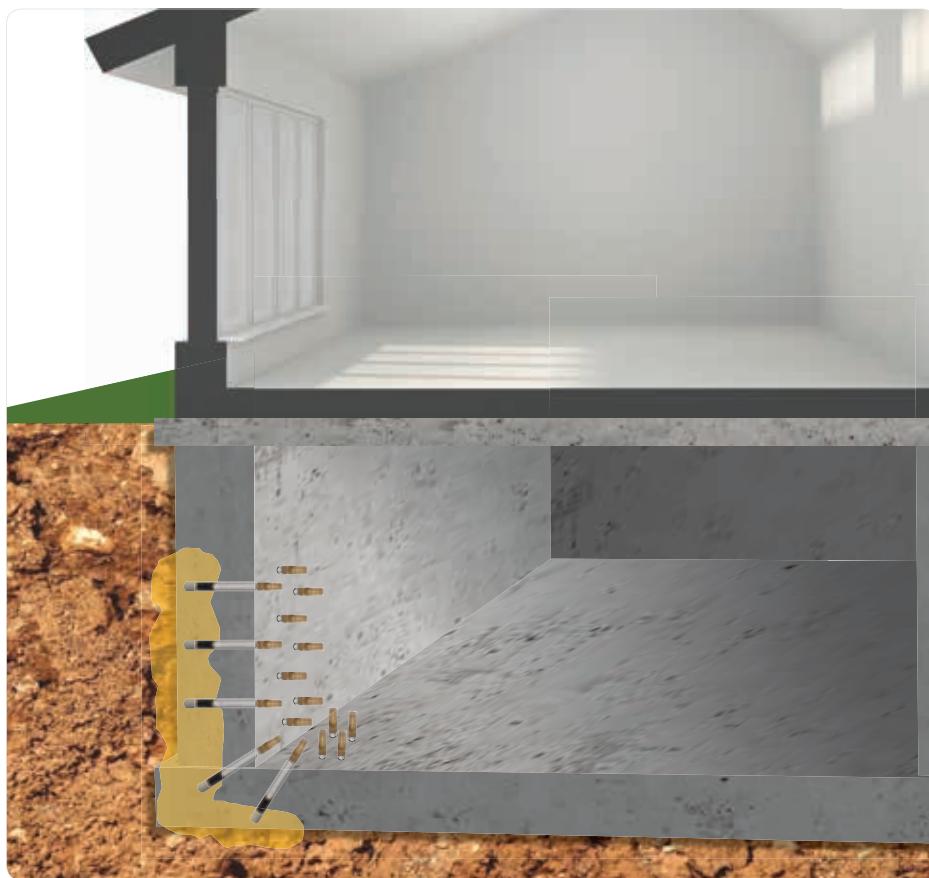
Packer is a must have in chemical grout used for injection of epoxy and polyurethane foam in into hose penetrated at a pressure higher than 20kg/cm(max. pressure 500kg/cm) on to concrete structures. We produce the injection packers in various specifications that are required in repairing and reinforcing concrete structures.

The factory automation we have enable us not only cut back costs but also produce them in uniform quality. The specification of packers used here may be chosen depending on the thickness of the concrete structures and on site situations.



It is possible to force a large amount of resin at a high speed, which ensures the through injection.

Because backwater check valves are installed on bolt areas, it is possible, irrespective of the hardening of resin, to snap the severed parts of the nuts immediately after the injection work is completed.



SINGLE-LINE PUMP

DOUBLE-LINE PUMP

ACRYLIC RESIN PUMP

PACKER

CHEMICAL

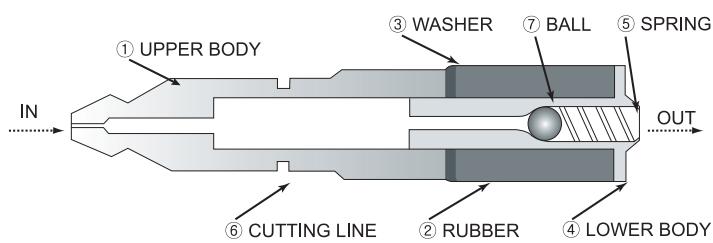
# INJECTION PACKER



## OVERVIEW [소개]

Patented construction method preventing water-tight layer form destruction mainly because of cracks or its swelling/ coming off as expansion matters such as moisture generated form layers under the water-tight layer, which is exposed and directly affected by tem- perature are emitted.

당사는 콘크리트 구조물의 보수·보강 유지보수에 필수 요소인 인젝션용 패 카를 다양한 제품으로 생산하고 있으며, 생산라인의 자동화로 원가 절감은 물론 균일한 품질의 제품을 생산하고 있습니다. 특히, 고압주입용 패카로서 의 내구성과 저점도 수지에도 역류방지 기능이 탁월하며, 패킹 및 마감 작 업이 용이하도록 설계되어 있습니다.



# COMPONENT

## PACKER

### ● INJECTION PACKER



Variant	Unit	No
Ø6mm x 45mm	indv	60045

◆ APPLICABLE PUMP MODEL

- Less than 15cm of concrete thickness

### ● INJECTION PACKER



Variant	Unit	No
Ø8mm x 55mm	indv	80055

◆ ADVANTAGE/INFORMATION

- Less than 30cm of concrete thickness

### ● INJECTION PACKER



Variant	Unit	No
Ø10mm x 60mm	indv	10060

◆ ADVANTAGE/INFORMATION

- Less than 50cm of concrete thickness

### ● INJECTION PACKER



Variant	Unit	No
Ø13mm x 70mm	indv	13070

◆ ADVANTAGE/INFORMATION

- Less than 50cm of concrete thickness

### ● INJECTION PACKER



Variant	Unit	No
Ø10mm x 100mm	indv	10100
Ø10mm x 150mm	indv	10150
Ø10mm x 200mm	indv	10200

◆ ADVANTAGE/INFORMATION

- More than 60cm of concrete thickness

### ● INJECTION ALUMINIUM PACKER



Variant	Unit	No
Ø13mm x 100mm clamping rubber 30mm	100	13100
Ø13mm x 130mm clamping rubber 30mm	100	13130
Ø13mm x 150mm clamping rubber 40mm	100	13150
Ø13mm x 200mm clamping rubber 40mm	indv	13200
Ø13mm x 250mm clamping rubber 40mm	indv	13250
Ø13mm x 300mm clamping rubber 40mm	indv	13300
Ø13mm x 400mm clamping rubber 40mm	indv	13400
Ø13mm x 500mm clamping rubber 40mm	indv	13500
Ø13mm x 600mm clamping rubber 40mm	indv	13600

◆ ADVANTAGE/INFORMATION

- Head Nipple M6
- Free passage Ø2.0mm

# COMPONENT

## PACKER

### ● INJECTION ALUMINIUM PACKER



Variant	Unit	No
Ø13mm x 100mm clamping rubber 30mm	100	33100
Ø13mm x 130mm clamping rubber 30mm	100	33130
Ø13mm x 150mm clamping rubber 40mm	100	33150
Ø13mm x 200mm clamping rubber 40mm	indv	33200

### ● INJECTION ALUMINIUM PACKER



Variant	Unit	No
Ø13mm x 100mm clamping rubber 30mm	100	53100
Ø13mm x 130mm clamping rubber 30mm	100	53130
Ø13mm x 150mm clamping rubber 40mm	100	53150
Ø13mm x 200mm clamping rubber 40mm	indv	53200

#### ◆ ADVANTAGE/INFORMATION

- External Thread M1/8"
- Free passage Ø2.0 mm

#### ◆ ADVANTAGE/INFORMATION

- External Thread M10x1
- Free passage Ø2.0 mm

### ● INJECTION ALUMINIUM PACKER



Variant	Unit	No
Ø16mm x 150mm clamping rubber 40mm	100	16150
Ø16mm x 200mm clamping rubber 40mm	indv	16200
Ø16mm x 250mm clamping rubber 40mm	indv	16250
Ø16mm x 300mm clamping rubber 40mm	indv	16300
Ø16mm x 400mm clamping rubber 40mm	indv	16400
Ø16mm x 500mm clamping rubber 40mm	indv	16500
Ø16mm x 600mm clamping rubber 40mm	indv	16600

### ● INJECTION ALUMINIUM PACKER



Variant	Unit	No
Ø16mm x 130mm clamping rubber 40mm	100	26130
Ø16mm x 150mm clamping rubber 40mm	100	26150
Ø16mm x 200mm clamping rubber 40mm	indv	26200
Ø16mm x 250mm clamping rubber 40mm	indv	26250
Ø16mm x 300mm clamping rubber 40mm	indv	26300
Ø16mm x 400mm clamping rubber 40mm	indv	26400
Ø16mm x 500mm clamping rubber 40mm	indv	26500

#### ◆ ADVANTAGE/INFORMATION

- Head Nipple M6
- Free passage Ø5mm

#### ◆ ADVANTAGE/INFORMATION

- External Thread M1/4"
- Free passage Ø2.0 mm

# COMPONENT

## PACKER

SINGLE-LINE PUMP

DOUBLE-LINE PUMP

ACRYLIC RESIN PUMP

PACKER

CHEMICAL

### ● GEL ALUMINIUM PACKER



Variant	Unit	No
Ø13mm x 300mm	indv	63300
Ø13mm x 580mm	indv	63580

### ● GEL ALUMINIUM PACKER



Variant	Unit	No
Ø13mm x 300mm	indv	73300
Ø13mm x 580mm	indv	73580

#### ◆ ADVANTAGE/INFORMATION

- External Thread M1/8" coupler
- For homogeneous masonry and concrete

#### ◆ ADVANTAGE/INFORMATION

- External Thread M1/8" coupler
- For hollow block masonry

### ● GEL ALUMINIUM PACKER



Variant	Unit	No
Ø13mm x 300mm	indv	63306
Ø13mm x 580mm	indv	63586

### ● GEL ALUMINIUM PACKER



Variant	Unit	No
Ø13mm x 300mm	indv	73306
Ø13mm x 580mm	indv	73586

#### ◆ ADVANTAGE/INFORMATION

- Nead Nipple M6
- For homogeneous masonry and concrete

#### ◆ ADVANTAGE/INFORMATION

- Nead Nipple M6
- For hollow block masonry

# COMPONENT

## PACKER

### ● GEL ALUMINIUM PACKER



Variant	Unit	No
Ø13mm x 300mm	indv	83300
Ø13mm x 580mm	indv	83580

#### ◆ ADVANTAGE/INFORMATION

- External Thread M1/8" coupler
- For hollow block masonry
- For homogeneous masonry and concrete

### ● GEL ALUMINIUM PACKER



Variant	Unit	No
Ø13mm x 300mm	indv	83306
Ø13mm x 580mm	indv	83586

#### ◆ ADVANTAGE/INFORMATION

- Nead Nipple M6
- For hollow block masonry
- For homogeneous masonry and concrete

### ● GEL ALUMINIUM PACKER



Variant	Unit	No
Ø16mm x 300mm	indv	46300
Ø16mm x 580mm	indv	46580

#### ◆ ADVANTAGE/INFORMATION

- External Thread M1/4" coupler
- For hollow block masonry

### ● GEL ALUMINIUM PACKER



Variant	Unit	No
Ø16mm x 300mm	indv	56300
Ø16mm x 580mm	indv	56580

#### ◆ ADVANTAGE/INFORMATION

- External Thread M1/4" coupler
- For hollow block masonry

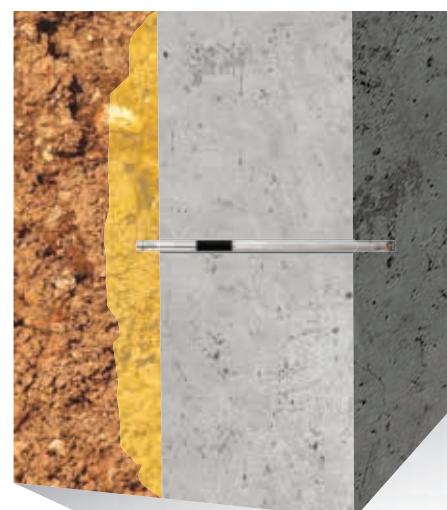
### ● GEL ALUMINIUM PACKER



Variant	Unit	No
Ø16mm x 300mm	indv	66300
Ø16mm x 580mm	indv	66580

#### ◆ ADVANTAGE/INFORMATION

- External Thread M1/4" coupler
- For hollow block masonry
- For homogeneous masonry and concrete



# COMPONENT

## PACKER

### ● JET PIN ALUMINIUM PACKER



Injection pipe Ø7mm x 310mm

Injection pipe Ø7mm x 780mm

End piece with cross boreholes Ø2mm(4 x 90° offset)

Variant	Unit	No
Ø13mm x 380mm	indv	93380
Ø13mm x 850mm	indv	93850

#### ◆ ADVANTAGE/INFORMATION

- External Thread M1/8" coupler

### ● JET PIN ALUMINIUM PACKER



Injection pipe Ø10mm x 300mm

Injection pipe Ø10mm x 770mm

End piece with cross boreholes Ø2.6mm(4 x 90° offset)

Variant	Unit	No
Ø16mm x 380mm	indv	76380
Ø16mm x 850mm	indv	76850

#### ◆ ADVANTAGE/INFORMATION

- External Thread M1/4" coupler

### ● JET PIN ALUMINIUM PACKER



Injection pipe Ø7mm x 310mm

Injection pipe Ø7mm x 780mm

End piece with cross boreholes Ø2mm(4 x 90° offset)

Variant	Unit	No
Ø13mm x 380mm	indv	93386
Ø13mm x 850mm	indv	93856

#### ◆ ADVANTAGE/INFORMATION

- External Thread M1/8" coupler

### ● 1/8 COUPLER



Variant	Unit	No
Brass 1/8" coupler	indv	33101
Brass 1/4" coupler	indv	36151
Stainless Steel 1/8" coupler	indv	33102
Stainless Steel 1/4" coupler	indv	36152

#### ◆ ADVANTAGE/INFORMATION

- Brass 1/8 coupler
- Maximum usable pressure 51kgf/cm<sup>2</sup>
- Internal pressure 76kgf/cm<sup>2</sup>
- Connect torque 51kgf/cm<sup>2</sup>
- Stainless Steel 1/8 coupler
- Maximum usable pressure 76kgf/cm<sup>2</sup>
- Internal pressure 102kgf/cm<sup>2</sup>
- Connect torque 92 kgf/cm<sup>2</sup>

# COMPONENT

## PACKER

● GALVANIZED CHROME  
MOLYBDENUM STEEL 1/4 COUPLER



Variant	Unit	No
1/4" coupler	indv	36153

● ALUMINIUM REDUCER COPLER



Variant	Unit	No
PT 1/8" x PT 1/4" Reducer	indv	73301

◆ ADVANTAGE/INFORMATION

- Maximum usable pressure 210kgf/cm<sup>2</sup>
- Internal pressure 315kgf/cm<sup>2</sup>
- Connect torque 286kgf/cm<sup>2</sup>

● ALUMINIUM BRASS M6 NIPPLE



Variant	Unit	No
1/4" x M6 Nipple	indv	26151

● ALUMINIUM BRASS BUTTON NIPPLE



Variant	Unit	No
1/8" button nipple	indv	23101

● ALUMINIUM BRASS BUTTON NIPPLE



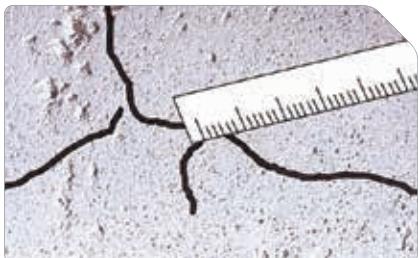
Variant	Unit	No
1/4" button nipple	indv	16151

● ALUMINIUM BRASS COPLER



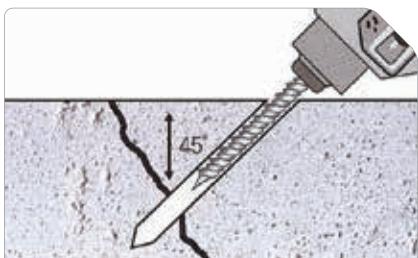
Variant	Unit	No
PT 1/4" * PT1/8" COPLER	indv	16152

# POLYURETHANE FOAM RESIN GROUTING METHOD



## ◆ CRACK AND LEAKAGE CONDITION INSPECTION

Check the process procedure after finding the thickness, width and depth of crack and leakage condition of the structure.



## ◆ DRILLING OPERATION

Drill directly into crack section if the thickness of concrete is thinner than 10cm. For the thickness of 10cm~50cm, drill it with 45° degree angle by keeping a distance of 1/5 of concrete thickness. Make sure it penetrates the crack section. If the thickness is over than 50cm, keep the distance of 20cm~30cm and drill it with 45 degree angle until it penetrates crack section. And keep drilling by maintaining the fixed interval. (5 holes per 1 meter. Drill it in zigzags)



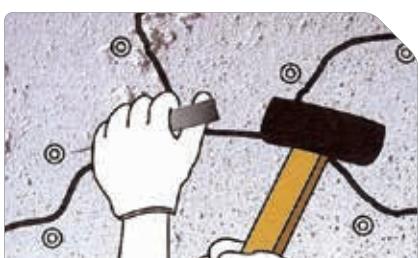
## ◆ PACKER INSTALLATION

Clean the inside of drilled holes with compressor. Make sure that rubber sleeve of packer and cutting line of tightening nut should be put into the inside of concrete surface when installing. Tighten the packer completely by using the T-box. (Packer might be damaged if you tighten it too strongly)



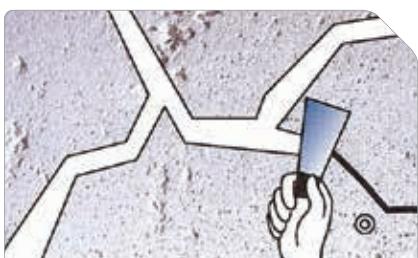
## ◆ INJECTION OPERATION

Inject the urethane water stopping material by using the high pressure device or grease gun. Maintain the initial injection pressure as around 40kg/cm and increase the pressure by each 10kg/cm gradually until the water stopping material flows out from crack section. Water will come out from the crack section first and then water stopping foaming agent and then water stopping liquid at last. If the water stopping material that is not foamed comes from the crack section, then move to next packer for injection.



## ◆ PACKER REMOVING OPERATION

Remove and break the packer by using vise pliers or hammer as a tool. If there is still a wet section, then inject the water stopping material again.



## ◆ FINISHING OPERATION

Remove the water stopping material that is remained on the crack section. Spreading with the elastic sealing material.

# INJECTION CAPSULE

## ● DELIVERY RANGE

Injection Capsule specialized to low pressure injection construction system, can inject epoxy to small cracks at large space simultaneously. During injection, you can check how much chemical is being injected by graduation of Injection Capsule . Is's one of the most popular systems of crack repair.

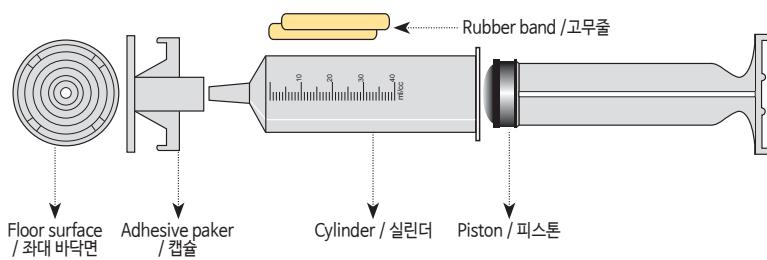


## ● TECHNICAL DATE

Capsule capacity	40 cc
Bench diameter	Ø49
Max pressure	2.5 kgf/cm <sup>2</sup>
Max length	210 mm
Min length	145 mm
Weight	35.7 g
Surface adhesive strength	38 kgf

## ● DESCRIPTION

- EPOXY RESIN



# COMPONENT

## CAPSULE

### • CAPSULE



Variant	Unit	No
Capsule capacity 40CC	indv	70040

### • ADHESIVE PAKER



Variant	Unit	No
Banch diameter Ø49	indv	70049

### • KLEBIFIX

- Tool to hold adhesive packer to apply the adhesive (Insulating material, e.g. PUR adhesive or EP adhesive)



Variant	Unit	No
	indv	70100

### • ADHESIVE PAKER



Variant	Unit	No
Banch diameter Ø49	indv	70050

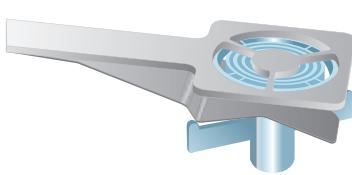
### ◆ ADVANTAGE/INFORMATION

- The exactly required amount of adhesive (Insulating material, approx. 6g) is applied on the adherene
- Access to the crack is maintained

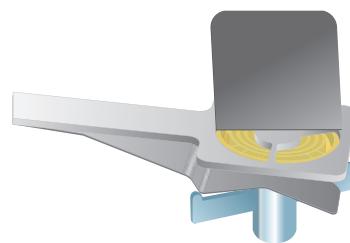
### ◆ ADVANTAGE/INFORMATION

- Height 38mm
- head Nipple M6

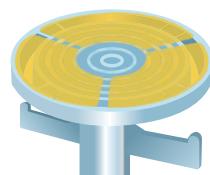
### DESCRIPTION "KLEBIFIX"



- Insert adhesive packer in "Klebfix"

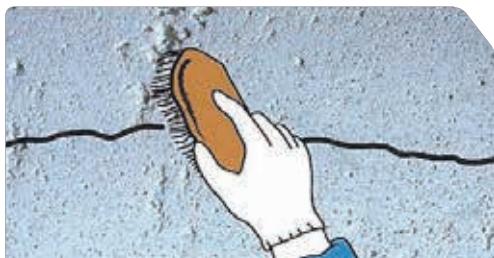


- Apply adhesive(sealing material)



- Adhesive surface is prepared, access to crack is maintained

# INJECTION CAPSULE SYSTEM



## ◆ INSPECTION OF CRACKS AND SURFACE TREATMENT

Work process should be determined by checking in advance the condition, width, depth of cracks.

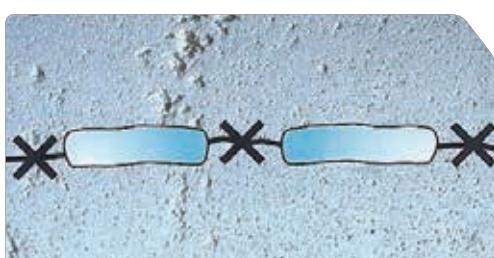
Remove dust or dirt from the area to be sealed with a wire brush and remove dirt from the surface by using a detergent like soap or thinner if any oily substance still remains



## ◆ DETERMINE THE AREA WHERE TO PLACE ADHESIVE PAKER

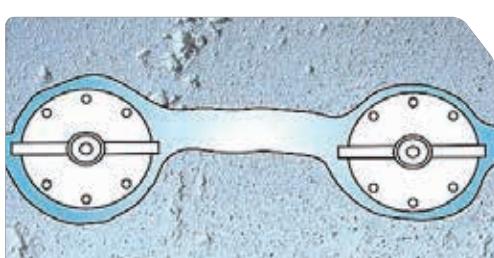
The adhesive paker should be placed in an interval of 15cm~20cm depending on the width of cracks.

Usually 20cm is the most appropriate distance between the washers. You should put 5~6 washers for the repairing of cracks of one meter length.



## ◆ SEALING OF CRACKS

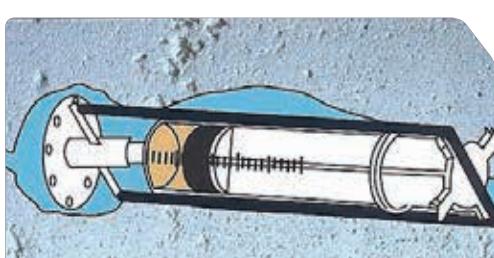
You should seal cracks with epoxy sealing material, 1mm thick and 30mm wide, except for areas where to put the washer to prevent the injected epoxy from leaking. If sealing is not properly done on cracks, loss of epoxy resin can occur due to the damage of sealing when injection device is installed. Therefore, you should pay special attention while you work.



## ◆ SETTING THE ADHESIVE PAKER

You should set the adhesive paker with epoxy sealing material on the places made in advance.

Stop the work until the sealing material is completely hardened. (It takes about 24 hours at the normal temperature of 25°C)



## ◆ INJECTION OF EPOXY

Fill the syringe injector with 30cc of epoxy grouting material and connect rubber bands with the washers. Place all the syringe injectors on the washers in the same way.

When the grouting material of a syringe injector is consumed before tack free, you have to replace the syringe injector promptly with a syringe injector newly charged and continue injection.



## ◆ FINISHING WORK

After confirming that the grouting material is hardened, remove the syringe injector and washer and grind the surface cleanly with a hand grinder and finish, if necessary, with crack cover material or paint. (You can do the finishing work after about one day in summer, and about two days in winter, which is required for initial hardening)



# Chemical

# SINGLE-LINE

## ONE-COMPONENT TYPE



### SW-PU 200

SW-PU 200 is one liquid type radius firing urethane having strong hydrophobic type. Through injecting and putting leakage part of concrete and reacting with water, It is the product forming water firing stage of closed cell structure closing off from Influx water. As free-solvent type having no stimulating offensive smell, It is a product having quick response, no shrinking change, and excellent permeable.

SW-PU 200은 소수성(Hydrophobic type)이 강한 1 액형 반경질 발포우레탄으로 콘크리트 균열누수부위에 주입, 충진되어 물과 반응하여 close cell 구조의 수발포 층을 형성 유입수를 차단하는 제품입니다. 자극적인 취기가 없는 무용제 타입으로 빠른 반응성과 수축변형이 없고 균열내부의 침투성과 지수성이 우수한 제품입니다.

#### ◆ Use / 용도

- Leakage part of ceiling joint in building, Co-packing of inside of structure, leakage part of all concrete.
- 건물의 천정, 벽체, 조인트 누수부위, 구조물 내부의 공동 충진

#### ◆ Physical properties / 기본 물성

Viscosity 점도	450~600mPa.s
Specific gravity 비중	1.12~1.2
Foaming magnification 발포배율	above 15times 15배 이상
Foaming time 발포시간	300~400s
Seal shear adhesion strength 인장전단접착강도	45N/mm <sup>2</sup>

#### ◆ Foaming magnification and forming time dependent on the ratio liquid/water / 액과 물의 혼합비에 따른 결과치

Ratio (liquid : Water) 혼합비 (액:물)	5:1	10:1	15:1	20:1
Foaming magnification 발포배율	8~11	16~20	13~16	10~14
Foaming time 발포시간	above 600s	300~350s	280~300s	330~370s

# SINGLE-LINE ONE-COMPONENT TYPE



## ◆ Use / 용도

- Leakage part of ceiling joint in building, Co-packing of inside of structure, Leakage part of all concrete.
- 건물의 천정, 벽체, 조인트 누수부위, 구조물 내부의 공동 충진

◆ Foaming time of mixing liquid (dependent on the ratio liquid/accelerator) reacts with water. (Ratio = Mixing liquid/water 10:1) / 원액과 촉진제의 혼합비에 따른 물과의 반응시 발포종료 시간 (혼합액과 물의 비율은 10:1)

Ratio (liquid : accelerator) 혼합비(액액:촉진제)	2:1	5:1	10:1	15:1
Foaming time 발포시간	150~200s	320~340s	400~430s	above 600s

## SW-PU 300

SW-PU 300 is two liquid type(raw liquid 10: accelerator 1) radius firing urethane, Through injecting and putting leakage part of concrete and reacting with water, It is the product forming same thing as SW-PU 200 and closing off from Influx water. In order to regulate reacting time at the site in accordance with condition characteristics(ex: humidity, temperature, elution amount), It is the product made for mixing and using separate accelerator.

SW-PU300은 SW-PU200과 동일한 품을 형성하여 유입수를 차단하며 현장의 제반특성(예: 습도, 온도, 용출수량 등)에 맞게 현장에서 반응시간을 조절하기 위하여 별도의 촉진제를 혼합하여 사용하도록 개발된 제품입니다. (SW-PU 300도 주문 생산합니다.)

## ◆ Physical properties / 기본 물성

### Liquid / 원액

Viscosity 점도	450~600mPa.s
Specific gravity 비중	1.12~1.2
Foaming magnification 발포배율	above 15times 15배 이상
Foaming time 발포시간	350~450s
Seal shear adhesion strength 인장전단접착강도	45N/mm <sup>2</sup>
Ratio (liquid : Accelerator) 혼합비(액액:촉진제)	10:1

### Accelerator / 촉진제

Viscosity 점도	1~10mPa.s
Specific gravity 비중	0.95~1

# SINGLE-LINE

## ONE-COMPONENT TYPE



### SW-PU 500(PU V)

SW-PU500 is one liquid type soft firing urethane having strong hydrophilic type. Through injecting and putting leakage part of structure joint having vibration, It is the product forming water firing stage of open cell structure, keeping elasticity and closing off from Influx water. Owing to forming high-elasticity at the small amount of water and forming quick response partial gel at the large amount of water, it is the excellent product having no shrinking change.

SW-PU500은 친수성(Hydrophilic type)이 강한 1액형 연질 발포우레탄으로 진동이 있는 구조물의 조인트 누수 부위등에 주입, 충진되어 고탄성의 open cell 구조의 수발포층을 형성하여 신축성을 유지하며 유입수를 차단하는 제품입니다. 소량의 물에서는 고탄성의 품을 형성하고 다량의 물에서는 빠른 반응성의 부분적 젤폼을 형성하며 수축변형이 없는 우수한 제품입니다.

#### ◆ Use / 용도

- Leakage part of structure having vibration, The rear disparity of structure
- 진동이 있는 구조물의 균열누수부위, 구조물의 배면차수용

#### ◆ Physical properties / 기본 물성

Viscosity 점도	800~1300mPa.s
Specific gravity 비중	1.08~1.2
Foaming magnification 발포배율	6~15 Times
Foaming time 발포시간	90~200s

#### ◆ Foaming magnification and forming time dependent on the ratio liquid/water / 약액과 물의 혼합비에 따른 결과치

Ratio (liquid : Water) 혼합비 (약액:물)	5:1	10:1	15:1	20:1
Foaming magnification 발포배율	Gel	5~10	5~10	5~10
Foaming time 발포시간	20~60s	160~190s	90~120s	160~190s

# DOUBLE-LINE

## TWO-COMPONENT TYPE



### SW-PU 700

SW-PU 700 is main element having polyol and hardening agent having MDI element. It is two liquid type hard firing urethane. Through injecting and packing soil of weak base, It is the base rock solid product forming high-strength firing solid, operating ground stabilization regulating gel time, and closing off a large amount of influx water. It is the excellent product having no shrinking change.

SW-PU 700은 주로 폴리올계 성분의 주제와 MDI계 성분의 경화제로 2액형 타입의 경질 발포우레탄으로 연약 지반의 토양 속에 주입, 충진되어 고강도의 발포고결체를 형성하여 지반안전화 성능과 젤타임의 조절로 다양한 유출수도 차단할 수 있는 암반고결용 제품이며 무용제 타입의 기계적강도가 우수한 제품입니다.

#### ◆ Use / 용도

- Stabilization of weak ground.

#### ◆ Physical properties / 기본 물성

Viscosity 점도	150~200mPa.s
Foaming magnification 발포배율	8~18 Times
Foaming time 발포시간	1~5min
Bending strength 굽힘 강도	55~80kg/cm <sup>2</sup>
Pressing strength 압축강도	40~65kg/cm <sup>2</sup>
Ratio {Resin(A) : Hardener(B)} 혼합비{주제(A) : 강화제(B)}	100:100, 100:250 (2 sorts)

# DOUBLE-LINE

## TWO-COMPONENT TYPE



### SW-PU 900

SW-PU 900 is main element having polyol and hardening agent having MDI element. It is two liquid type hard firing urethane. It is the product forming pure high-strength urethane solid at dry process breakage part and forming partial firing solid at wet process breakage part. Owing to having superior technological feature to concrete, it is the product having excellent repair and reinforcement and being able to reinforce and waterproof at the same time.

SW-PU 900은 폴리올계 성분의 주제와 MDI계 성분의 경화제로 2액형 타입의 고강도 우레탄으로 건식균열 부위에서는 순수 고강도우레탄 고결체를 형성하고 습식균열부위에서는 일부 발포고결체를 형성하는 제품입니다. 콘크리트보다 우수한 기계적 물성을 지니고 있어 대형콘크리트 구조물의 건식 및 습식 균열부위에서 지수와 보강을 동시에 할 수 있는 보수 보강력이 뛰어난 제품입니다.

#### ◆ Use / 용도

- Drying/Wetting process, Leakage part of concrete structure.
- Repair and reinforcement of leakage.
- 건식 및 습식 콘크리트 구조물의 누수부위 균열의 보수보강용

#### ◆ Physical properties / 기본 물성

Viscosity 점도	150~250mPa.s
Ratio {Resin (A) : Hardener (B)} 혼합비{주제(A) : 강화제(B)}	100 : 100
Pressing strength 압축강도	1,150kg/cm <sup>2</sup>
Bending strength 굽힘강도	677kg/cm <sup>2</sup>
Seal strength 인장강도	468kg/cm <sup>2</sup>
Seal shearing adhesion strength 인장전단접착강도	72kg/cm <sup>2</sup>
Hardening time 경화시간	less than 5min, above 20min(2 sorts) 5분 이내, 20분 이상(2종)

# DOUBLE-LINE TWO-COMPONENT TYPE



## SW-PU 900 PLUS

SW-PU 900 PLUS is main element having polyol and hardening agent having changeable MDI element, it is two liquid type high-elasticity firing urethane. Through injecting breakage part of structure having vibration problem and joint, it is the product having excellent elasticity and adhesion and used as repairing of break-age part of structure flowing part.

SW-PU 900 PLUS는 폴리올계 성분의 주제와 변성 MDI 계 성분의 경화제로 2액형 타입의 고탄성 우레탄으로 진동이 있는 구조물의 균열부위 및 조인트에 주입하여 우수한 신축성과 접착력으로 구조물 유동부위의 균열보수에 사용되는 제품입니다.

### ◆ Use / 용도

- Breakage part of concrete structure having problem of vibration, joint injection and repair
- 진동이 있는 구조물의 균열부위, 조인트 주입 보수용

### ◆ Physical properties / 기본 물성

Viscosity 점도	300-400mPa.s
Elongation 신장률	230%
Ratio {Resin(A) : Hardener(B)} 혼합비{주제(A) : 강화제(B)}	100:100
Hardening time 경화시간	3~30 min

# EPOXY-LINE

## TWO-COMPONENT

### DRY-SURFACE SUPER LOW VISCOSITY

### 건식 초저점도 주입제



### SW-EP 100

SW-EP 100 is an ultra low viscosity epoxy resin that can be injected into even minute cracks that are difficult to inject. With strong adhesion and durability, without volatile solvents, after hardening (during) it does not shrink at all perfect crack repair is possible.

SW-EP 100은 주입이 어려운 미세한 균열에도 주입이 가능하도록 만든 초저점도 에폭시수지입니다. 강한 접착력과 내구성을 갖고 있으면서도 휘발성 용제를 함유하고 있지 않음으로, 경화 후에도 전혀 수축을 하지 않음으로 완벽한 균열 보수가 가능하도록 하였습니다.

#### ◆ Use / 용도

- Possible to the end of hairline cracks(0.3mm below) of concrete
- Grouting reinforcement of aged, weakened parts of concrete.
- 콘크리트의 미세한 균열(0.3mm이하) 주입
- 콘크리트 노화 취약부 침투, 보강용

#### ◆ PROPERTIES / 특성

- Super-low Viscosity & High strength
- Non-shrinking & harden
- Offers an outstanding durability by preventing corrosion.
- 초저점도 고강도
- 무수축 완전경화
- 내수, 내약품성 우수

#### ◆ Physical properties / 기본 물성

Package 포장단위 12Kg SET	Main Component 주제 9Kg	Hardening Component 경화제 3Kg
Exterior Appearance / 외관	Lemon yellow Liquid / 달황색 투명색	
Principal constituent / 주성분	Epoxy, Polyamide / 에폭시수지, 폴리아마이드	
Specific gravity / 비중	1.18~1.10	
Mixing Rate / 배합비	Main Component:Hardening Component = 3:1 (Weight ratio) / 주제:경화제 = 3:1 (중량비)	
Pot Life(min) / 가사시간	40min(분)/300g. 20°C	
Viscosity/ 점도	120CPS/20°C	

# EPOXY-LINE

## TWO-COMPONENT

### DRY-SURFACE LOW VISCOSITY

### 건식 저점도 주입제



### SW-EP 200

SW-EP 200 is a low-viscosity epoxy resin widely used for bridges, dams, column beams and slabs for injection small cracks in concrete structures.

With strong adhesion and durability, without volatile solvents, after hardening (during) it does not shrink at all perfect crack repair is possible.

SW-EP 200은 콘크리트 구조물의 소균열 부위의 주입용으로 교량, 댐, 기둥 보, 슬라브등의 광범위 하게 이용되고 있는 저점도 에폭시수지입니다. 강한 접착력과 내구성을 갖고 있으면서도 휘발성 용제를 함유하고 있지 않음으로, 경화 후에도 전혀 수축을 하지 않음으로 완벽한 균열 보수 가능하도록 하였습니다

#### ◆ Use / 용도

- Possible to the end of hairline cracks(0.5mm below) of concrete
- Marhanical base weight part
- Floor surface excitation
- 콘크리트의 미세한 균열(0.5mm이하) 주입
- 기계 기초 하중부위
- 바닥면 들뜸 부위

#### ◆ PROPERTIES / 특성

- low Viscosity & High strength
- Non-shrinking & harden
- Offers an outstanding durability by preventing corrosion.
- 저점도 고강도
- 무수축 완전경화
- 내수, 내약품성 우수

#### ◆ Physical properties / 기본 물성

Package 포장단위 15Kg SET	Main Component 주제 10Kg	Hardening Component 경화제 5Kg
Exterior Appearance / 외관	Lemon yellow Liquid / 담황색 투명색	
Principal constituent / 주성분	Epoxy, Polyamide / 에폭시수지, 폴리아마이드	
Specific gravity / 비중	1.1	
Mixing Rate / 배합비	Main Component:Hardening Component = 2:1 (Weight ratio) / 주제:경화제 = 2:1 (중량비)	
Pot Life(min) / 가사시간	55min(분)/300g. 20°C	
Viscosity / 점도	250CPS/20°C	

# EPOXY-LINE

## TWO-COMPONENT

### DRY-SURFACE MEDIUM VISCOSITY

### 건식 저점도 주입제



#### SW-EP 300

SW-EP 300 is a low-viscosity epoxy resin which is used for injection of the middle cracks of concrete structures.

With strong adhesion and durability, without volatile solvents, after hardening (during) it does not shrink at all perfect crack repair is possible.

SW-EP 300은 콘크리트 구조물의 중균열 부위의 주입용으로 이용되고 있는 저점도 에폭시수지입니다. 강한 접착력과 내구성을 갖고 있으면서도 휘발성 용제를 함유하고 있지 않음으로, 경화 후에도 전혀 수축을 하지 않음으로 완벽한 균열 보수가 가능하도록 하였습니다.

#### ◆ Use / 용도

- Possible to the end of hairline cracks(1.0mm below) of concrete
- Steel for reinforcement
- Floor surface excitation part
- 콘크리트의 균열(1.0mm이하) 주입
- 철판 보강용
- 바닥면 들뜸 부위

#### ◆ PROPERTIES / 특성

- Excellent physical properties and durability
- Non-shrinking & harden
- Offers an outstanding durability by preventing corrosion.
- 우수한 물리적 성질과 내구성
- 무수축 완전경화
- 내수, 내약품성 우수

#### Package / 포장단위

Package 포장단위	Main Component 주제	Hardening Component 경화제
15Kg SET	10Kg	5Kg

#### ◆ Physical properties / 기본 물성

Exterior Appearance / 외관	Lemon yellow Liquid / 달황색 투명색
Principal constituent / 주성분	Epoxy, Polyamide / 에폭시수지, 폴리아마이드
Specific gravity / 비중	1.15
Mixing Rate / 배합비	Main Component:Hardening Component = 2:1 (Weight ratio) / 주제:경화제 = 2:1(중량비)
Pot Life(min) / 가사시간	55min(분)/300g, 20°C
Viscosity/ 점도	500CPS/20°C

# EPOXY-LINE

## TWO-COMPONENT

### DRY-SURFACE HIGH VISCOSITY

### 건식 고점도 주입제



Package 포장단위	Main Component 주제	Hardening Component 경화제
15Kg SET	10Kg	5Kg

#### ◆ Physical properties / 기본 물성

Exterior Appearance / 외관	Lemon yellow Liquid / 담황색 투명색
Principal constituent / 주성분	Epoxy, Polyamide / 에폭시수지, 폴리아마이드
Specific gravity / 비중	1.15
Mixing Rate / 배합비	Main Component:Hardening Component = 2:1 (Weight ratio) / 주제:경화제 = 2:1 (중량비)
Pot Life(min) / 가사시간	60min(분)/300g. 20°C
Viscosity / 점도	구리스(마요네즈)성상

## SW-EP 400

SW-EP 400 is a highly-viscose epoxy resin for repairing cracks, which has a new viscosity characteristics for injection of large cracks in concrete structures.

With strong adhesion and durability, without volatile solvents, after hardening (during) it does not shrink at all perfect crack repair is possible

SW-EP 400은 콘크리트 구조물의 대균열 부위의 주입용으로 새로운 점도 특성을 갖고 있는 대크랙 보수용 고점도 에폭시수지입니다. 강한 접착력과 내구성을 갖고 있으면서도 휘발성 용제를 함유하고 있지 않음으로, 경화 후에도 전혀 수축을 하지 않음으로 완벽한 균열 보수가 가능하도록 하였습니다.

#### ◆ Use / 용도

- Big crack & Injected moving crack
- V-cutting part & for high strength sealing
- Concave and convex part adjusting & pinhole fill in
- 대균열 및 유동균열 주입
- V 컷팅 부위 고강도 실링용
- 요철부위 조정, 핀홀 메꾸기

#### ◆ PROPERTIES / 특성

- No running down even vertical direction
- Non-shrinking & harden
- Offers an outstanding durability by preventing corrosion.
- 수직방향 균열에도 흘러내리지 않음
- 무수축 완전경화
- 내수, 내약품성 우수

# EPOXY-LINE

## TWO-COMPONENT

### GROUTING FOR WET-SURFACE

### 습식 주입제



## SW-EP 500

SW-EP 500 is an epoxy resin which is injected into wet crack infusion repair work and shows excellent adhesion at the part where water is bored and is processed into low viscosity type and easy to inject. With strong adhesion and durability, without volatile solvents, after hardening (during) it does not shrink at all perfect crack repair is possible.

SW-EP 500은 습윤 균열 주입 보수공사 주입용으로 물기 가 배어있는 부위에 탁월한 접착력을 보이며 저점도 타입으로 가공되어 주입이 용이한 에폭시수지입니다. 휘발성 용제를 함유하고 있지 않음으로, 경화 후에도 전혀 수축을 하지 않음으로 완벽한 균열 보수가 가능하도록 하였습니다.

### ◆ Use / 용도

- Underwater crack injection repair work
- Underground structures, water tank repair work
- 수중균열 주입 보수공사
- 지하구조물, 물탱크 보수공사

### ◆ PROPERTIES / 특성

- Excellent wet condition adhesion
- Excellent underwater hardening
- Excellent adhesion to metals
- 습윤 접착성 우수
- 수중 경화성 우수
- 금속과의 접착성이 뛰어남

Package 포장단위	Main Component 주제	Hardening Component 경화제
15Kg SET	10Kg	5Kg

### ◆ Physical properties / 기본 물성

Exterior Appearance / 외관	Lemon yellow Liquid / 달황색 투명색
Principal constituent / 주성분	Epoxy, Polyamide / 에폭시수지, 폴리아마이드
Specific gravity / 비중	1.1~1.3
Mixing Rate / 배합비	Main Component:Hardening Component = 2:1 (Weight ratio) / 주제:경화제 = 2:1 (중량비)
Pot Life(min) / 가사시간	60min(분)/300g, 20°C
Viscosity/ 점도	250CPS/20°C

# EPOXY-LINE

## TWO-COMPONENT

### DRY TYPE SEALANT

### 건식 씰링제



Package 포장단위	Main Component 주제	Hardening Component 경화제
15Kg SET	10Kg	10Kg

#### ◆ Physical properties / 기본 물성

Exterior Appearance / 외관	Lemon yellow Liquid / 담황색 투명색
Principal constituent / 주성분	Epoxy, Polyamide / 에폭시수지, 폴리아마이드
Specific gravity / 비중	1.5
Mixing Rate / 배합비	Main Component:Hardening Component = 1:1 (Weight ratio) 주제:경화제 = 1:1 (중량비)
Pot Life(min) / 가사시간	60min(분)/20°C
Viscosity / 점도	No vertical sag / 수직처짐 없음

## SW-EP 600

SW-EP 600 is a special formulated epoxy sealant that does not spill on vertical surfaces. It is widely used as a sealing when repairing cracks and it has excellent adhesion to concrete and metal, so it can repair damaged part of concrete, repair of exposed steel.

SW-EP 600은 특수 배합이 되어 수직면에서도 흘러내리지 않는 에폭시 씰링제로서 콘크리트, 금속에서 접착성이 우수하여 콘크리트의 손상된 부분, 노출된 철근의 보수, 균열보수시 씰링제로서 광범위하게 사용됩니다.

#### ◆ Use / 용도

- Crack part sealing work
- Washer attach
- Steel exposure part repair
- Concrete hurts part fill in
- 균열부위 씰링공사
- 좌대(washer)의 부착
- 철근 노출 부위의 보수
- 콘크리트 흠 파인곳 메꿈.

#### ◆ PROPERTIES / 특성

- Excellent adhesion con'c to meet metals
- Clay type, no running down
- Excellent for concrete work
- 콘크리트, 금속에서의 강한 접착력
- 점토형으로 흘러내림이 없음
- 작업성이 우수

# EPOXY-LINE

## TWO-COMPONENT

### WET TYPE SEALANT

### 습식 씰링제



Package 포장단위	Main Component 주제	Hardening Component 경화제
15Kg SET	10Kg	5Kg

#### ◆ Physical properties / 기본 물성

Exterior Appearance / 외관	Gray putty / 회색 퍼티
Principal constituent / 주성분	Epoxy, Polyamide / 에폭시수지, 폴리아마이드
Specific gravity / 비중	1.1
Mixing Rate / 배합비	Main Component:Hardening Component = 2:1 (Weight ratio) / 주제:경화제 = 2:1 (중량비)
Pot Life(min) / 가사시간	60min(분)/20°C
Viscosity/ 점도	No vertical sag / 수직처짐 없음

## SW-EP 700

SW-EP 700 is a underwater adhesives that are fully cured even in places where moisture and water are generated and exhibits excellent adhesion.

It is widely used in civil engineering and construction fields as it allows for underwater adhesive that was never considered possible.

SW-EP 700은 습기와 물기가 발생하는 곳에서도 완전 경화되어 우수한 접착력을 발휘하는 수중 접착제, 종래에는 불가능하게 생각되었던 수중접착이 가능해짐으로써 토목 건축분야에서도 광범위하게 사용됩니다.

#### ◆ Use / 용도

- Wet condition adhesion work
- Wet condition joint work
- Underwater & wet condition surface sealing work
- Underwater & wet condition surface excellent adhesion
- 습윤접착공사
- 습윤줄눈작업
- 수중 및 습윤면 씰링보수
- 수중 앙카볼트, 금속등의 접착

#### ◆ PROPERTIES / 특성

- Underwater & wet condition surface excellent adhesion
- Purry matrial of clay type condition
- Never hardening shrinkage
- 수중, 습윤면에서의 우수한 접착력
- 점토상태의 퍼티재
- 경화 수축이 전혀 없음

# ACRYLIC RESIN



Item / 항목	일반형 (AG600) A제/B제 Normal type
Chief ingredient / 주성분	ACRYLIC RESIN
Mixed viscosity / 혼합점도	20 CP or less / 20CP 이하
Mix proportioning / 배합비	100 : 100
Hardener / 경화물	Gel
Use / 용도	Back grouting of underground structures like subways and tunnels, and waterproof of joints. Leakage stop and back grouting of all buildings and civil structures '지하철, 터널 지하구조물의 배면 그라우팅 및 죠인트 부위 지수 건축, 토목 구조물의 누수 지수 및 배면 그라우팅'

## FEATURES

- It has very low viscosity so that it can penetrate into fine pore or soil easily.
- Wide range of hardening time control allows coping with various field conditions.
- It is not dissolved or leached in alkali or acid chemical and stable for any kind of chemical environment of underground water or lock.
- Excellent elastic and adhesive property provides long lasting index effect.
- There is no gel welding phenomenon, the disadvantage of sodium silicate or no aging by hydrolysis.
- High elastic flexible gel formed after congealation swells when contacting water by absorbing vibration. Therefore it provides continuous water block ability as it copes with second deformation of ground and structures appropriately.

## APPLICATIONS

- Leakage stop for all buildings and civil structures
- Water blockage and back grouting for junctions of underground structures
- Permanent waterproof grouting for underground structures like tunnels and subways
- Water leakage repair work for extension joint and joint construction
- Joint and leak site of reservoir, swimming pool and pond etc.
- Pore area of concrete structures

SINGLE-LINE PUMP

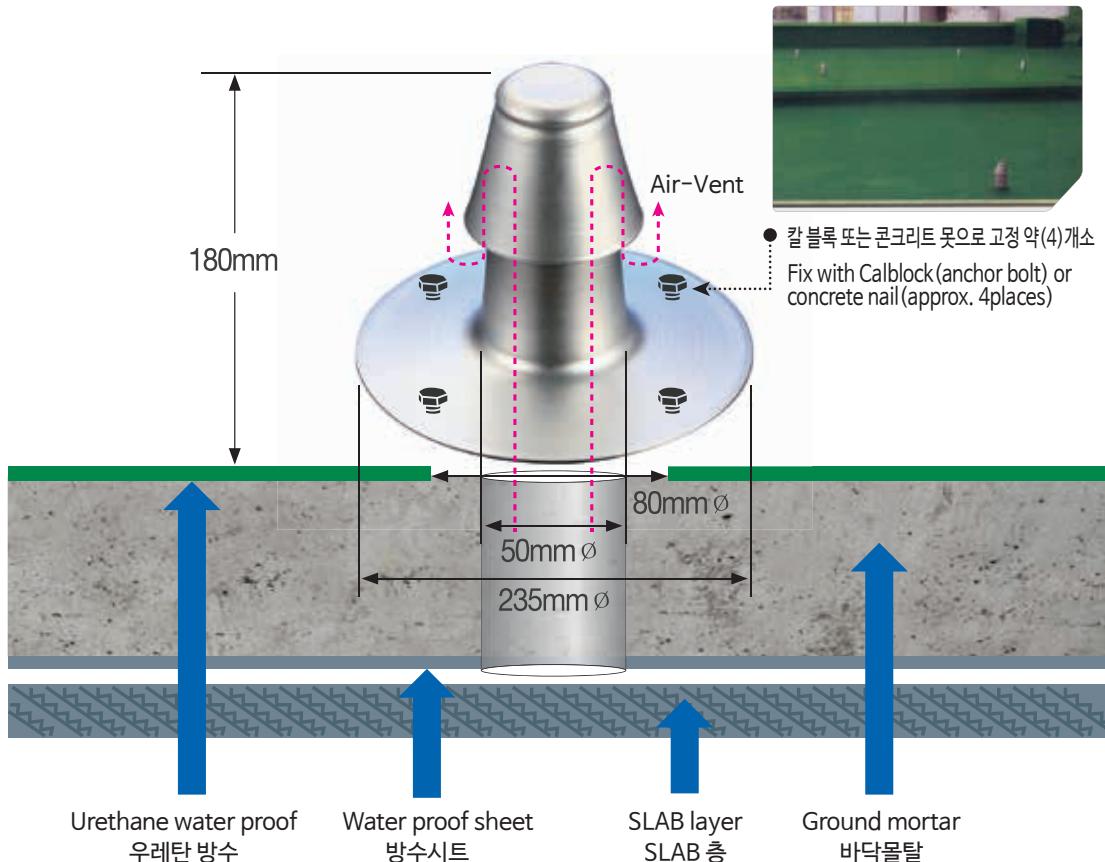
DOUBLE-LINE PUMP

ACRYLIC RESIN PUMP

PACKER

CHEMICAL

# Air-Vent



## FEATURES

- Fully combined with water-tight layer
- Effective on entire rooftop's area
- Effective on entire rooftop's multi-layers
- Floor can be available due to projected region located on edges

## TECHNICAL DATA

Weight	340g
Width/Length/Height	235x235x180mm
Installation area	one per approx, 50m <sup>2</sup>

## APPLICATIONS

- Exhaust mechanism for rooftop's water-tight layer
- Water conveyance for rooftop's water-tight layer
- Exhaust mechanism for exposed water-tight layer
- Water conveyance for exposed water-tight layer

## TO BE USED

Discharge of moisture in rooftop urethane water-proof or place needed for moisture discharge



# ELSE PARTS



◆ DRILL

Use a twist drill (10Ø) to drill holes at an interval of less than 20cm. At a depth of 6~10cm, drill at a 45 degree angle along the side of the crack.



◆ INSERT PACKER

Remove dust from the drilled holes and insert packers. Leave about 2cm from the injection site to easily remove packers at the end.



◆ TIGHTEN PACKER

Use a T handle (10Ø) to tighten packers to firmly position the packers and to prevent the grout from leaking.



◆ URETHANE FOAM GROUT

Fill two-thirds of the injection pump with urethane foam grout and close the lid.



◆ BEGIN INJECTION

Begin injection- Since the packers are installed at intervals less than 20cm, begin from one end to the other. Move from bottom to top for vertical cracks and from end points to the middle for horizontal cracks.



◆ WHEN INJECTING

When injecting, start with a low pressure and inject until 10cm leaks out from both sides of the packer. Do not inject too much at once and insert the next packer before more injections.



◆ REMOVE PACKER

Use a hammer to hit the injection site of the packer to separate it from the wall. Since the packer is able to prevent reverse current flow, the urethane grout in the cracks will not leak out even with the removed packer.



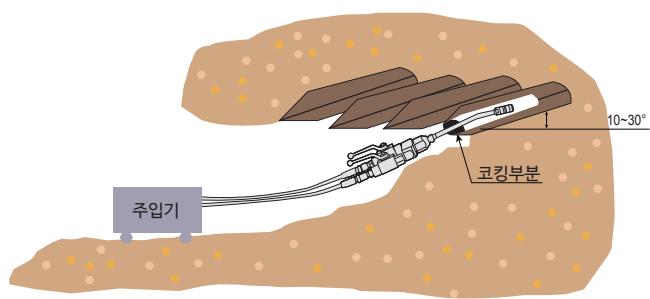
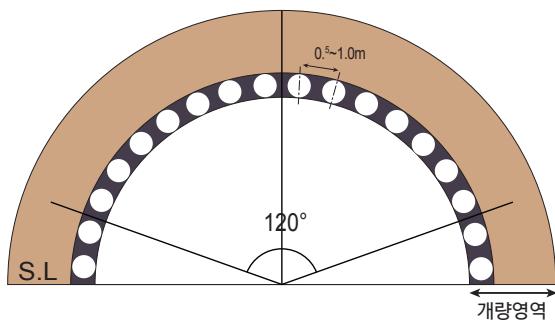
◆ CLEANING

Use a urethane thinner followed by cleaning oil if you do not plan to use it again for a long time. Use only cleaning oil if you will be using it within a few days. Fill one-third of the injection pump for cleaning. You may use engine oil instead of cleaning oil.

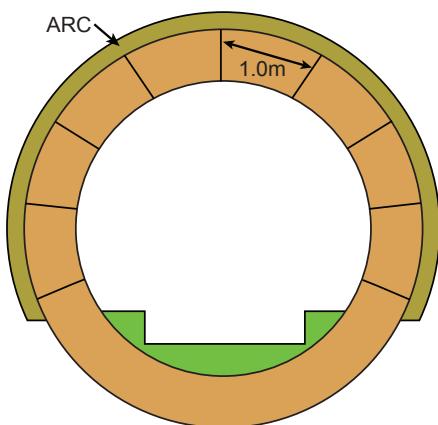


# CONSTRUCTION WORK, EXAMPLE

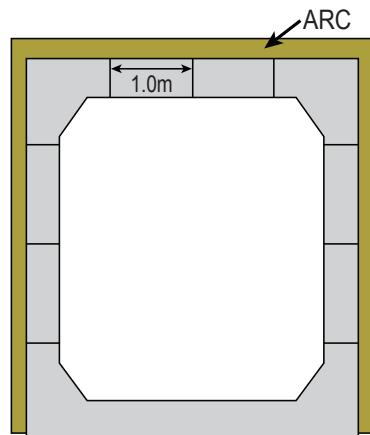
## ● 일반터널



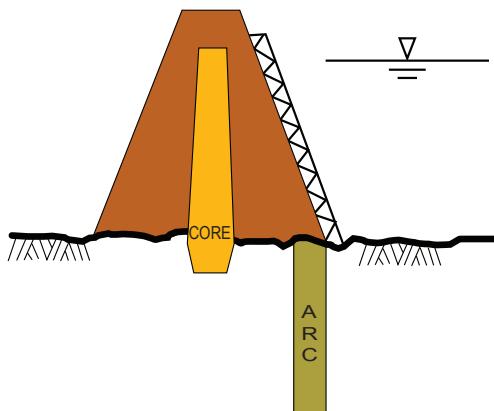
## ● 라이닝터널 조인트



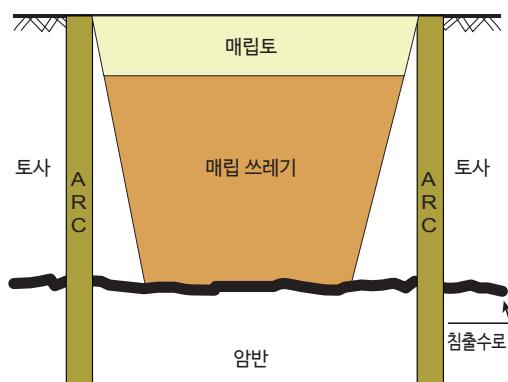
## ● 공동구 및 BOX터널 조인트



## ● DAM 커튼 보강 그라우팅



## ● 쓰레기매립장 침출수 차단커튼 그라우팅



# CONSTRUCTION WORK, EXAMPLE

● CEILING PIPE AROUND



● UNDERGROUND PARKING CEILING



● UNDERGROUND PARKING CEILING



● HIT INSULATOR WALL



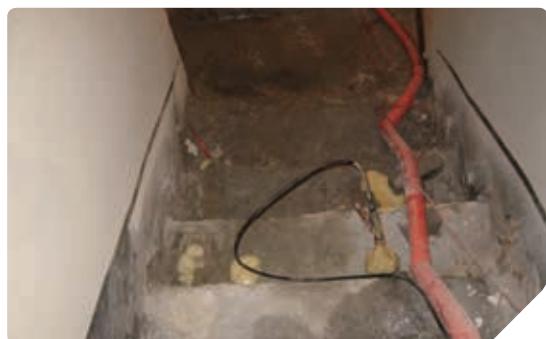
● AN AIRCONDITIONER PIPE



● WASH STAND PIPE



● UNDERGROUND STAIR



● ELEVATOR FLOOR OF WHOLE



SINGLE-LINE PUMP

DOUBLE-LINE PUMP

ACRYLIC RESIN PUMP

PACKER

CHEMICAL

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