

**SEKISUI**



**SEKISUI  
VIETNAM  
CO., LTD**

April, 2017

# SEKISUI CHEMICAL

Since our founding in 1947, the Sekisui Chemical Group has been supplying various products and services to enrich people's lives and the social infrastructure.

Currently, we are involved in creating innovations based on the group slogan of "A new frontier, a new lifestyle."

Our company have 3 divisional Companies, Housing company, High Performance and Urban Infrastructure & Environmental Products Company. We, isui Chemical Group will continue to develop the frontiers of "Creation of Housing/Social Infrastructure" and "Chemical Solutions," utilizing its prominent technology and quality, thereby contributing to people's lives around the world and the global environment.

## Urban Infrastructure and Environmental Products Company

"Lifeline Innovation for Our Future" Contributing to the development of safe and convenient lifelines and water environments.

## Housing Company

We conducts business based on the principle of providing environmentally-friendly housing for safe and comfortable living for at least 60 years.

## High Performance Plastics Company

"Chemical Solution" We develop and provide high-performance materials that take customer products even further.



# SEKISUI VIETNAM

SEKISUI Chemicals strengthens its presence in the Asian water infrastructure market with the new sales company Sekisui Vietnam Co., Ltd (SVC).

The new sales company SVC focusing on the water infrastructure industry was established in Vietnam in January 2015. The affiliate headquarter in Hanoi, Vietnam, is responsible for the marketing of the water, sewer system and buildings products of SEKISUI's Urban Infrastructure & Environmental Products Company in Vietnam as well as the Asian countries. With a comprehensive sales and marketing strategy, SVC will contribute to increase the presence of SEKISUI in the area of water and sewer systems in Asia.

Together with its business partner Tien Phong Plastic Joint Stock Company, SEKISUI has already started to penetrate into Vietnamese market by taking advantage of Tien Phong Plastic's capabilities and by supplying products and services matched to the needs of the Vietnamese market in 2013. Tien Phong Plastic is a major plastics manufacturer in Vietnam with a strong sales network who is supplying products under the brand of SEKISUI as OEM including plastic pipes.

We will intensify the business for water and sewer system projects using OEM products manufactured

by Tien Phong Plastic and products imported from the SEKISUI Chemical Group. The products are used in the private home as well as public building sector. Plastic pipes, water chambers, manholes, fittings, rain gutters or any other water and sewer infrastructure products are promoted not only to Vietnam but also to other Asian countries. For this purpose, SVC will collaborate with Tien Phong Plastic to conduct sales in Asian countries. Moreover, we will also cooperate with local construction companies and deploy the advanced pipe construction and quality control techniques that Sekisui Chemical established in Japan with the aim of handling comprehensive projects for water and sewer industries.

Company policy is that "We will contribute to Vietnamese society and achieve a better life in Vietnam using our any kind of technology and product"

## OUTLINE

**Name:** SEKISUI VIETNAM CO., LTD.

**Establishment day:** December 25, 2014

**Capital:** 750,000 US\$

**President, General Director:** Noboru Kobayashi.

**Office Location:** Unit 1414, 14th Floor, CornerStone Building, 16 Phan Chu Trinh, Hoan Kiem District, Hanoi, Vietnam

**Tel:** (+84 4) 39392677 **Fax:** (+84 4) 39392678

## Outline

**Name:** \_\_\_\_\_ SEKISUI CHEMICAL CO., LTD

**Establishment:** \_\_\_\_\_ March 3, 1947

**Paid-up Capital :** \_\_\_\_\_ 100,000 million Yen

**Chairman of the Board and Representative**

**Director:** \_\_\_\_\_ Naofumi Negishi

**President and Representative Director:** \_\_\_\_\_ Teiji Koge

**Number of Employees:** \_\_\_\_\_ 23,901

(for the term ended March 2016; on a consolidated basis)

**Net Sales:** \_\_\_\_\_ 1,096,317 million Yen

(for the term ended March 2016; on a consolidated basis)

**Operating Income:** \_\_\_\_\_ 89,823 million Yen

(for the term ended March 2016; on a consolidated basis)

**Ordinary Income:** \_\_\_\_\_ 81,213 million Yen

(for the term ended March 2016; on a consolidated basis)

**Net Income:** \_\_\_\_\_ 56,653 (million Yen)

(for the term ended March 2016; on a consolidated basis)

## Corporate Headquarters

Osaka Head Office  
2-4-4 Nishitemma, Kita-ku,  
Osaka 530-8565 Japan  
Tel: +81-6-6365-4122

Tokyo Head Office  
2-3-17 Toranomon, Minato-ku,  
Tokyo 105-8450 Japan  
Tel: +81-3-5521-0521  
<http://www.sekisuichechemical.com/>



# Urban Infrastructure & Environmental Products Company

## WATER-RELATED PIPE SYSTEMS

Lineup of water pipes including conduits and distribution pipes, as well as sewer pipes leading to waste water treatment facilities.

### Water Supply System

**Water Transmission Pipe from water source to areas**

**GRP Pipe(Glass-reinforced Plastic Pipe)**

Reinforced plastic pipe with extremely excellent earthquake resistance, flow characteristics, and strength.



**Distribution pipes for supplying water to respective houses and buildings**



**Earthquake-resistant High-performance PE Pipe**

Earthquake-resistant flexible polyethylene pipe with highly reliable EF fittings, which eliminates the fear of breakage or water leakage due to land subsidence.



**Impact-resistant Unplasticized PVC Pipe**

The impact resistance is more than double in comparison with conventional HI pipes, preventing an impact fracture accident due to impact during work.

### Sewage System

**Sewage pipes for collecting wastewater from respective houses and buildings**



**Sewage Pipe and Manholes**

PVC sewage pipe and manholes with excellent corrosion resistance and water tightness.



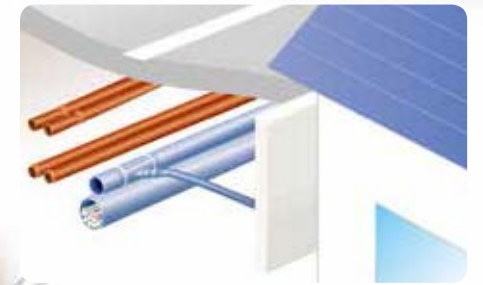
**Large diameter pipes for collecting wastewater from various areas and sending it to wastewater treatment facilities**



**Measures for high head drop "Drop Shaft"/ GRP Pipe**

This high-strength plastic pipe with a spiral structure allows water to flow down smoothly to solve the problem of the head drop of pipelines. The pipe permits rainwater storage in a tens of meters deep place.

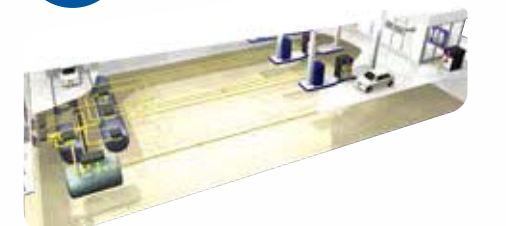
### Electric Power & Communication



**Protection Pipe for Electric Power & Communication**

This pipe compactly contains electric power and communication cables in a space under roads.

### Gas & Petroleum



**PE Pipe for Gas & Petroleum**

Polyethylene pipe and fittings resistant to corrosion due to stray current and acid soil.

### Measures for Rainwater



**Rain Station 500 for Side Street**

Rain station is ideal for rainwater collection and infiltration in a small area under a side street.



**EF Fittings**

EF(electrofusion) fittings unify the pipeline.



# Urban Infrastructure & Environmental Products Company

## Water-related Pipe Systems

### Apartments & Buildings(Office - Hotel - Hospital)

Water supply pipes for sending water to respective houses and offices in buildings

#### Water Raiser Pipe



##### High-performance PE Pipe

Polyethylene water distribution and supply lines materialize an entirely plastic system from under a road up to a building.

#### Hot & Cold System



##### E-Xb(Cross Linked PE)

Long and soft polyethylene pipe can be arranged freely under the floor and above the ceiling of a building.

#### Air Conditioner Pipe



##### Multilayer Pipe

Lightweight and flexible, maintaining a curved shape. It ensures low-cost and quick installation, having the merits of both plastic and metal pipes.

Underground water supply pipes for supplying water in distribution pipes to buildings

#### Buried Water Supply Pipe



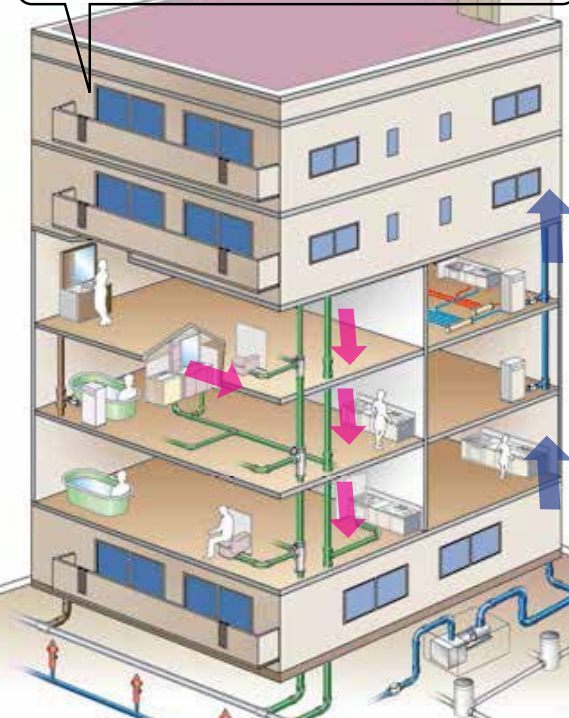
##### High-performance PE Pipe PE Pipe

Highly reliable EF fittings eliminate the fear of water leakage.

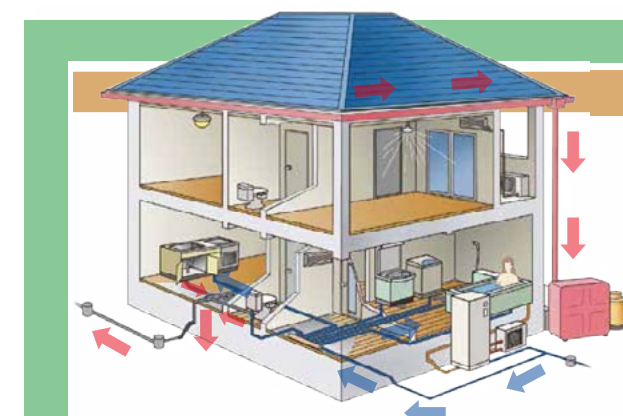


##### PE Sprinkle Pipe

The excellent durability and workability are ideal for fire-fighting pipes.



Apartment



## LINE UP OF FACILITY PIPES INDISPENSABLE FOR BUILDINGS

Drain pipes for leading sewage water discharged from houses and offices to sewage system

#### Drain Pipe



##### 3Liner Pipe

Recycled PVC pipe is changed into a raw material and used as an intermediate layer.



##### Fire-shield for Buildings Rigid PVC Pipe

Drain pipe and ventilation pipe of the building prevent fire. No change in fire limits and pipes and no work to pass pipes through fire limits!

#### Vertical Drain Pipe



##### Drain-Lining Pipe

Piping material for building drainage made by lining the inner surface of thin steel pipes, which have the external diameter specified in Carbon Steel Pipes for Ordinary Piping, with PVC-U pipe.

#### Rain Gutter



##### Rain Gutter for large buildings

With a simple streamlined design, this gutter performs a variety of tasks for drainage facilities of high-rise buildings, etc.

#### Water Storage Tank



##### GRP/SUS Sectional Water Tanks

Sekisui Water Tanks maintain their position as both a pioneer and world leader of FRP products, with easy on-site installation using bolt assemblies and customizable sizes/designs to accommodate any shape or volume needed. Our tanks have also received WRAS, ISO 9001, 9002 and 14001 certifications..



Office Building

### House

#### Lineup of pipes for detached houses

##### Water Supply Pipe

##### Hot Water Supply Pipe Drain Pipe



Eslo Pex header piping for water and hot water supply for detached houses. The system piping with a drain header ensures easy maintenance

#### Rain Gutter



##### Rain Gutter for Houses

Highly weather-resistant treatment to control discoloration and staining increases the durability of houses. Colorful eaves are available according to the image of houses.

#### Water Storage Tank



##### Rainwater storage tank

The compact rainwater storage tank is used to wash cars, sprinkle garden flowers and plants with water, and prevent disaster.



# Urban Infrastructure & Environmental Products Company

## Industrial Pipes & Functional Materials

### Special Pipings for Industrial Applications



#### Valves / Sensors

"ESLON" manual & automatic type of plastic valves are excellent in corrosion and chemical resistance. Available in PVC, CPVC, PP and PVDF. In accordance with JIS, ASTM and ISO for joint.



#### Clean Pipes

"Super Eslo Clean" Pipes are excellent in elution characteristic and lower construction cost for high purity applications such as Semi-conductor, FPD and Solarpanel industry.



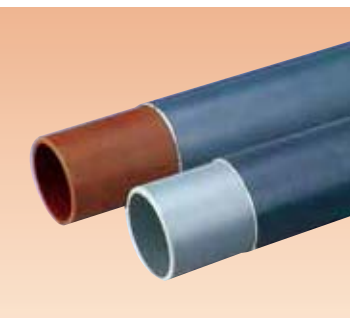
**CPVC Resin and Compound**  
CPVC Resin and Compound have heat and chemical resistance, and certificated in NSF.

**SCH80 PVC&CPVC Pipes**  
Sch80 PVC&CPVC Pipes are thick walled pipe with higher pressure in accordance with ASTM Standard and excellent in chemical resistance.



#### FW Pipes VPFW-HTFW

FW Pipes are the PVC or CPVC(HT) Pipes reinforced by FRP and excellent in higher pressure resistance, high temperature, small deflection, and lower thermal expansion and contraction.



**Higher Chemical Resistance Pipes**  
Specialized three types of pipes for industrial applications.

**CPVC for high temperature**

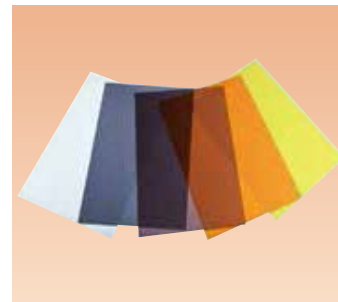
**P-10 for Alkali**

**T-17 for strong Acid**

**PVC for strong Acid**



### Static Dissipative Sheets for Semiconductor Applications



#### DC Plate

DC plates are high static dissipative sheets and available in PVC, PC, PMMA/Acrylic and A-PET.



## Thermoforming Sheets

#### "KYDEX" Thermoplastic Sheets

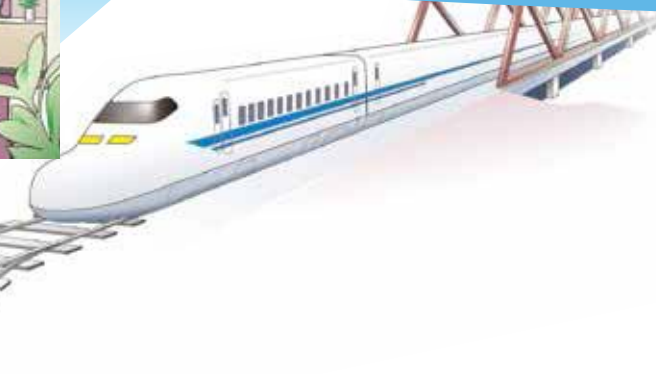
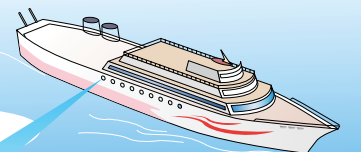
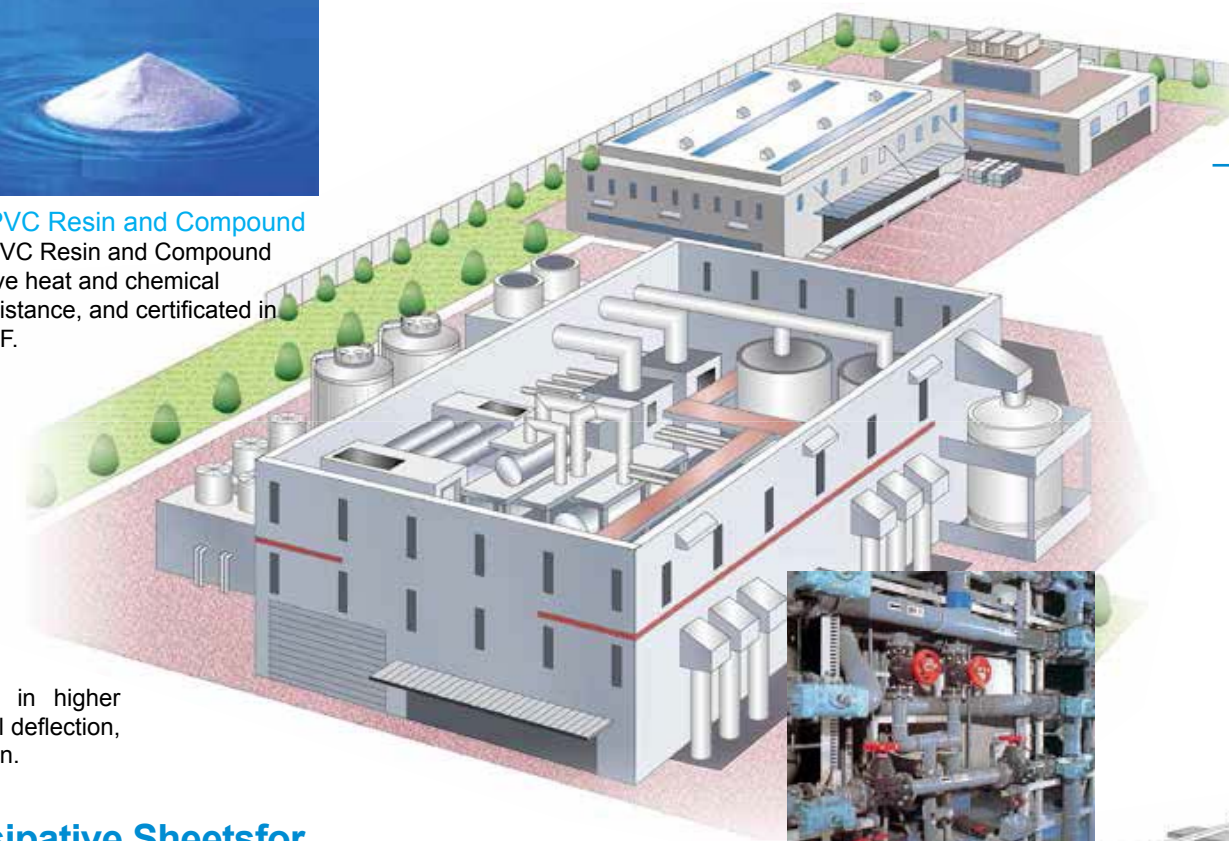
"KYDEX" sheets are high performance thermoplastic sheets made from Acrylic and PVC polymer alloy. High performance for applications of Aircraft interior, Mass transit interior and Medical device enclosures



#### "ALLEN" Thermoplastic Sheets

"ALLEN" sheets are mainly used for the exterior applications of Vehicle, Construction machinery and Agricultural machinery. Available in ABS, ABS/PC, Acrylic/ABS, HIPS, ASA and Alextra™. Alextra™ is a high-gloss, high-impact sheet at extreme weather conditions.

## Functional Materials



#### "CALMMOON" Sheets

"CALMMOON" sheet is an adhesion type of vibration absorbing material, and is applied in the transportation field (railcar, ship, automotive) and the industrial field thanks to its excellent characteristics such as high vibration absorption, high fire retardation, easy installation, light weight and thin thickness.



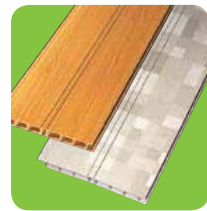
#### "FFU" Synthetic Sleeper

"FFU" made from urethane-resin reinforced with glass fiber is a new environmental product with the wood-like appearance. It has high durability and work ability, and is used for railway sleepers.





# Other Products & Systems

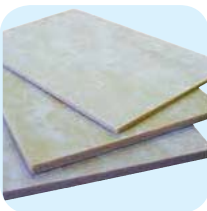


## Deck Material

Light weight load-resistant floor material with a sturdy, hard-to-bend structure In addition to the high durability and water - resistance. This long-running product has excellent design and weather ability to resist strong sunlight and rainwater.

## High-performance Phenol Foam “Phenova Board”

A high-performance heat insulation material made from phenol resin and non-CFC gas. The high-performance heat insulation effects lasts long and the material is fire resistant,not generating black smoke or toxic gas even if it catches fire.



## Hard Polypropylene Foam “Zetlon”

In this lightweight hard foam board, each piece of rugby - ball-shaped non-cross linked foam made mostly from poly- propylene is arrayed in the thickness direction to make the board compression resistant but flexible enough to be bent easily.

## Unit Bath (Prefabricated Bath)

For pleasure of your bathing time, we propose this Unit Bath. Jacuzzi and various shower will make you very comfortable. Especially C-ring and mist type shower make you hot even in winter with saving water. And more, the bench in the bathroom support your relaxation bathing, washing, stretching, and taking a rest. This Unit Bath can make you image easily various bathing time.



## Rotating Biological Contactor for wastewater treatment “ESROTAE”

Esrotae is a cubic latticed contactor that boasts excellent features compared to conventional active-sludge methods:

1.Energy Efficient: Only 2.2kwh needed to process 100t/day.

2.Up to 50% less sludge than conventional methods.

3.Space Saving: 1/8 the size of a 50t sludge treatment tank yet processes the same amount.

4.No technician needed.

## Decorative Floor Material “Cregare”

There are five types of materials plastic, rubber, porcelain tile, natural wood, and natural stone. Free combination of a variety of products allows users to design an original balcony.



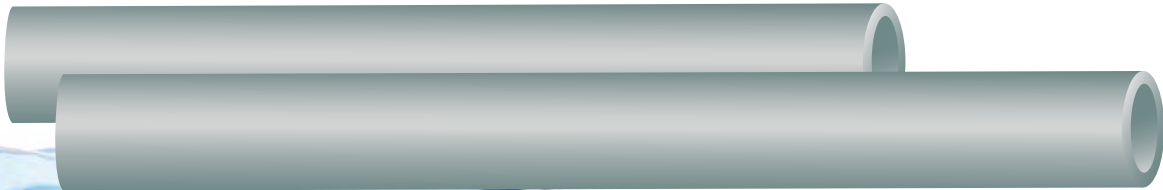
**POPULAR  
PRODUCT**



u.PVC pipes inch series

Standard BS 3505:1968, BSEN 1452 - 2:2000

Nominal diameter (mm)	Nominal wall thickness (mm)	Nominal pressuren (bar)	Length of socket	
			Pipe with solvent cement socket (mm)	Pipe with rubber seal socket (mm)
21	1,6	15	32	-
27	1,8	12	32	-
27	2,0	15	32	-
34	1,8	9	34	-
34	2,0	12	34	-
34	2,5	15	34	-
42	2,1	9	42	-
42	2,4	12	42	-
42	3,0	15	42	-
49	2,4	9	50	-
49	3,0	12	50	-
49	3,5	15	50	-
60	2,0	6	60	-
60	2,8	9	60	-
60	4,0	12	60	-
90	2,9	6	79	119
90	3,8	9	79	119
90	5,0	12	79	119
114	3,2	5	91	127
114	3,8	6	91	127
114	4,9	9	91	127
114	7,0	12	91	127
168	4,3	5	121	149
168	5,0	6	121	149
168	7,3	9	121	149
168	9,2	12	121	149
220	5,1	5	160	164
220	6,6	6	160	164



1 bar = 1 kg/cm<sup>2</sup>

u.PVC pipes should not be used under the following conditions:

- The temperature above 45°C.
- Under direct UV radiation, sun light.

u.PVC pipes inch series

Standard BS 3505:1968, BSEN 1452 - 2:2000

Nominal diameter (mm)	Nominal wall thickness (mm)	Nominal pressuren (bar)	Length of socket
			Pipe with solvent cement socket (mm)
21	1,2	9	32
21	1,4	12	32
27	1,1	8	32
27	1,4	9	32
34	1,3	6	34
34	1,6	9	34
42	1,4	6	42
42	1,7	7	42
49	1,9	8	50
60	1,5	4	60
60	1,8	5	60
90	1,7	3	79
114	1,9	3	91
114	2,4	4	91
168	2,8	3	121
168	3,5	4	121
220	4,0	3	160

u.PVC pipes CIOD series - Standard AS/NZS 1477:1996 - Compatible with cast iron pipes

Nominal diameter (mm)	Outside diameter (mm)	Nominal wall thickness (mm)	Nominal pressure (bar)
100	121,9	6,7	12
150	177,3	9,7	12

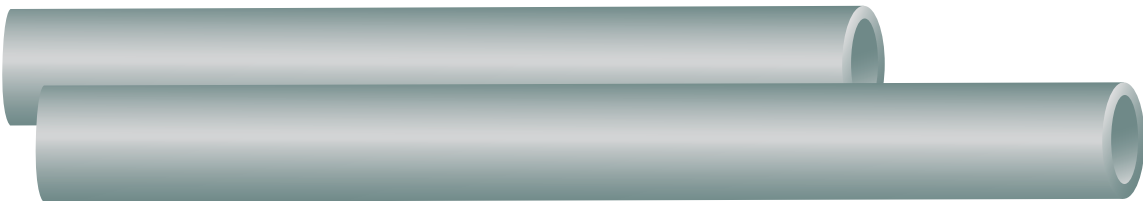
u.PVC pipes CIOD series - Standard ISO 2531:1998 - Compatible with cast iron pipes

Nominal diameter (mm)	Outside diameter (mm)	Nominal wall thickness (mm)	Nominal pressure (bar)
200	222,0	9,7	10
200	222,0	11,4	12,5



u.PVC pipes metric series  
Standard ISO 4422: 1996 (C = 2.0)

Nominal diameter (mm)	Nominal wall thickness (mm)							Length of socket	
	PN 6,3	PN 8	PN 10	PN 12,5	PN 16	PN 20	PN 25	Pipe with solvent cement socket (mm)	Pipe with rubber seal socket (mm)
110	2,7	3,4	4,2	5,3	6,6	8,1	10,0	91	126
125	3,1	3,9	4,8	6,0	7,4	9,2	11,4	100	128
140	3,5	4,3	5,4	6,7	8,3	10,3	12,7	109	135
160	4,0	4,9	6,2	7,7	9,5	11,8	14,6	121	137
180	4,4	5,5	6,9	8,6	10,7	13,3	16,4	133	146
200	4,9	6,2	7,7	9,6	11,9	14,7	18,2	145	158
225	5,5	6,9	8,6	10,8	13,4	16,6	-	160	165
250	6,2	7,7	9,6	11,9	14,8	18,4	-	175	170
280	6,9	8,6	10,7	13,4	16,6	20,6	-	193	186
315	7,7	9,7	12,1	15,0	18,7	23,2	-	214	198
355	8,7	10,9	13,6	16,9	21,1	26,1	-	238	205
400	9,8	12,3	15,3	19,1	23,7	-	-	265	220

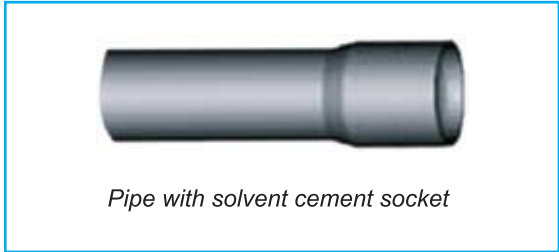


The advantages of u.PVC pipes:

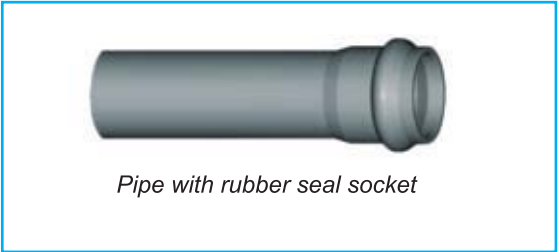
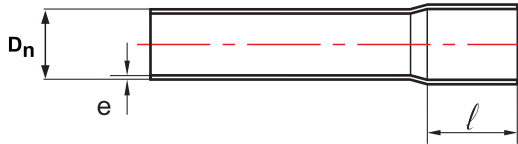
- Light and easy to transport and install..
- Smooth surface and small friction coefficient.
- High resistance to impact and pressure.
- Durable and high long life up to 50 years when use correctly.
- High resistance to chemical like acid, alkali, ... (water temperature from 0°C to 45°C).
- Low investment cost in comparison with other type of pipes.

u.PVC pipes metric series  
Standard ISO 4422: 1996 (C = 2.5)

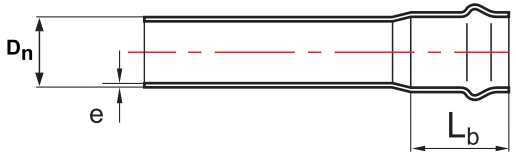
Nominal diameter (mm)	Nominal wall thickness (mm)								Length of socket	
	PN 4	PN 5	PN 6	PN 8	PN 10	PN 12,5	PN 16	PN 25	Pipe with solvent cement socket (mm)	Pipe with rubber seal socket (mm)
60	-	1,5	1,8	2,3	2,9	3,6	4,5	6,7	60	-
63	-	1,6	1,9	2,5	3,0	3,8	4,7	7,1	60	104
75	-	1,9	2,2	2,9	3,6	4,5	5,6	8,4	70	111
90	1,8	2,2	2,7	3,5	4,3	5,4	6,7	10,1	79	119
110	2,2	2,7	3,2	4,2	5,3	6,6	8,1	12,3	91	126
125	2,5	3,1	3,7	4,8	6,0	7,4	9,2	14,0	100	128
140	2,8	3,5	4,1	5,4	6,7	8,3	10,3	15,7	109	135
160	3,2	4,0	4,7	6,2	7,7	9,5	11,8	17,9	121	137
180	3,6	4,4	5,3	6,9	8,6	10,7	13,3	-	133	146
200	3,9	4,9	5,9	7,7	9,6	11,9	14,7	-	145	158
225	4,4	5,5	6,6	8,6	10,8	13,4	16,6	-	160	165
250	4,9	6,2	7,3	9,6	11,9	14,8	18,4	-	175	170
280	5,5	6,9	8,2	10,7	13,4	16,6	20,6	-	193	186
315	6,2	7,7	9,2	12,1	15,0	18,7	23,2	-	214	198
355	7,0	8,7	10,4	13,6	16,9	21,1	26,1	-	238	205
400	7,8	9,8	11,7	15,3	19,1	23,7	-	-	265	220



Pipe with solvent cement socket



Pipe with rubber seal socket



















- Solvent cement socket manufactured in accordance with DIN 19532.
- Ruber seal socket manufactured in accordance with DIN 8062.



u.PVC Products

HDPE pipes (PE80)  
Standard ISO 4427 : 2007

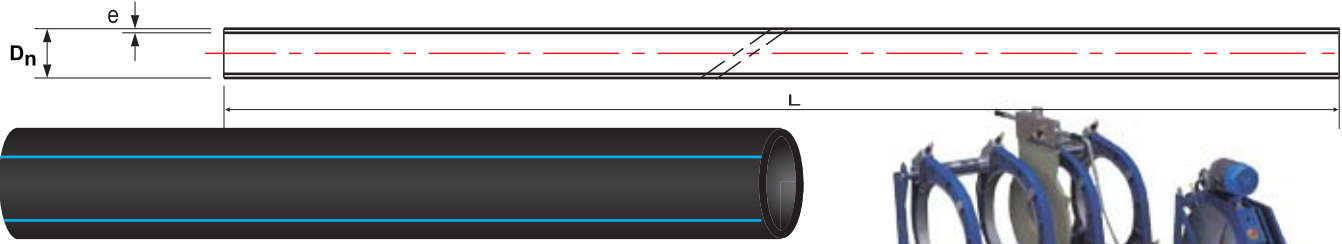
				
Equal coupling	Coupling reduced	90° Reduced tee	90° Elbow coupling	45° Elbow coupling
				
90° Tee equal	45° Tee	Faucet adaptor	Adaptor bush equal	90° Female chread elbow
				
90° Male thread elbow	u.PVC solvent cement	Rubber seal		

		
Pipe without socket	Pipe with solvent cement socket	Pipe with rubber seal socket

				
Faucet adaptor (with brass thread)	90° Facet elbow (with brass thread)	90° Facet tee (with brass thread)	Flange connection	90° Fabricated elbow
				
45° Fabricated elbow	90° Fabricated tee	45° Fabricated tee	Fabricated slant cross	Gasket slant cross
				
90° Gasket elbow	45° Gasket elbow	90° Gasket tee	Reducer with gasket	P trap with cleanout plug

Nominal diameter (mm)	Nominal wall thickness (mm)					Length of pipe (m)	Length of coil (m)
	PN 6	PN 8	PN 10	PN 12,5	PN 16		
16	-	-	-	-	2,3	6	300
20	-	-	-	2,0	2,3	6	300
25	-	-	2,0	2,3	3,0	6	300
32	-	2,0	2,4	3,0	3,6	6	200
40	2,0	2,4	3,0	3,7	4,5	6	100
50	2,4	3,0	3,7	4,6	5,6	6 - 12	100
63	3,0	3,8	4,7	5,8	7,1	6 - 12	25 - 50
75	3,6	4,5	5,6	6,8	8,4	6 - 12	50
90	4,3 (*)	5,4	6,7	8,2	10,1	6 - 12	25
110	5,3	6,6	8,1	10,0	12,3	6 - 12	-
125	6,0	7,4	9,2	11,4	14,0	6 - 12	-
140	6,7	8,3	10,3	12,7	15,7	6 - 12	-
160	7,7	9,5	11,8	14,6	17,9	6 - 12	-
180	8,6	10,7	13,3	16,4	20,1	6 - 12	-
200	9,6	11,9	14,7	18,2	22,4	6 - 12	-
225	10,8	13,4	16,6	20,5	25,2	6 - 12	-
250	11,9	14,8	18,4	22,7	27,9	6 - 12	-
280	13,4	16,6	20,6	25,4	31,3	6 - 12	-
315	15,0	18,7	23,2	28,6	35,2	6 - 12	-
355	16,9	21,1	26,1	32,2	39,7	6 - 12	-
400	19,1	23,7	29,4	36,3	44,7	6 - 12	-
450	21,5	26,7	33,1	40,9	50,3	6 - 12	-
500	23,9	29,7	36,8	45,4	55,8	6 - 12	-
560	26,7	33,2	41,2	50,8	62,5	6 - 12	-
630	30,0	37,4	46,3	57,2	70,3	6 - 12	-
710	33,9	42,1	52,2	64,5	-	6	-
800	38,1	47,4	58,8	-	-	6	-
900	42,9	53,3	-	-	-	6	-
1000	47,7	59,3	-	-	-	6	-
1200	57,2	67,9	-	-	-	6	-

(\*) Coil is not available.



Butt fusion machine of HDPE pipes, fittings



# HDPE pipes (PE100) Standard ISO 4427 : 2007

## HDPE Products

Nominal diameter (mm)	Nominal wall thickness (mm)						Length of pipe (m)	Length of coil (m)
	PN 6	PN 8	PN 10	PN 12,5	PN 16	PN 20		
20	-	-	-	-	2,0	2,3	6	300
25	-	-	-	2,0	2,3	3,0	6	300
32	-	-	2,0	2,4	3,0	3,6	6	200
40	-	2,0	2,4	3,0	3,7	4,5	6	100
50	2,0(*)	2,4	3,0	3,7	4,6	5,6	6 - 12	100
63	2,5(*)	3,0	3,8	4,7	5,8	7,1	6 - 12	50
75	2,9(*)	3,6	4,5	5,6	6,8	8,4	6 - 12	25 - 50
90	3,5(*)	4,3 (*)	5,4	6,7	8,2	10,1	6 - 12	25
110	4,2	5,3	6,6	8,1	10,0	12,3	6 - 12	-
125	4,8	6,0	7,4	9,2	11,4	14,0	6 - 12	-
140	5,4	6,7	8,3	10,3	12,7	15,7	6 - 12	-
160	6,2	7,7	9,5	11,8	14,6	17,9	6 - 12	-
180	6,9	8,6	10,7	13,3	16,4	20,1	6 - 12	-
200	7,7	9,6	11,9	14,7	18,2	22,4	6 - 12	-
225	8,6	10,8	13,4	16,6	20,5	25,2	6 - 12	-
250	9,6	11,9	14,8	18,4	22,7	27,9	6 - 12	-
280	10,7	13,4	16,6	20,6	25,4	31,3	6 - 12	-
315	12,1	15,0	18,7	23,2	28,6	35,2	6 - 12	-
355	13,6	16,9	21,1	26,1	32,2	39,7	6 - 12	-
400	15,3	19,1	23,7	29,4	36,3	44,7	6 - 12	-
450	17,2	21,5	26,7	33,1	40,9	50,3	6 - 12	-
500	19,1	23,9	29,7	36,8	45,4	55,8	6 - 12	-
560	21,4	26,7	33,2	41,2	50,8	62,5	6 - 12	-
630	24,1	30,0	37,4	46,3	57,2	70,3	6 - 12	-
710	27,2	33,9	42,1	52,2	64,5	79,3	6	-
800	30,6	38,1	47,4	58,8	-	-	6	-
900	34,4	42,9	53,3	66,2	-	-	6	-
1000	35,0	47,7	59,3	-	-	-	6	-
1200	45,9	57,2	67,9	-	-	-	6	-
1400	53,5	66,7	82,4	109,9	-	-	6	-
1600	61,2	76,2	94,1	117,6	-	-	6	-
1800	69,1	85,7	105,9	-	-	-	6	-
2000	76,9	95,2	117,6	-	-	-	6	-

(\*) Coil is not available.

### The advantages of HDPE pipes:

- Light and easy to transport and install.
  - Smooth surface and small friction coefficient.
  - High resistance to impact and pressure.
  - Durable and high long life up to 50 years when use correctly.
- High resistance to the sun light and UV radiation.
  - High resistance to chemical like acid, alkali, salts,... (water temperature is below 60°C).
  - High resistance to extreme low temperature up to -40°C.
  - Low investment cost in comparison with other type of pipes.

				
Equal coupling	Coupling reduced	End cap	90° Tee equal	90° Reduced tee
				
90° Elbow coupling	90° Male thread elbow	Adaptor with male thread	Clamp saddle	Threaded bush
				
90° Fabricated tee	45° Fabricated elbow	90° Fabricated elbow	90° Reduced fabricated tee	45° Fabricated tee
				
Flange	Steel backing ring	HDPE pipe		

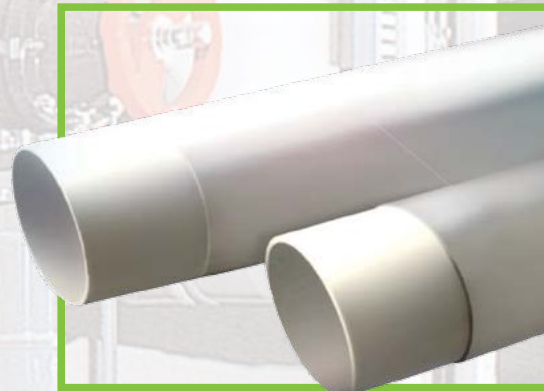
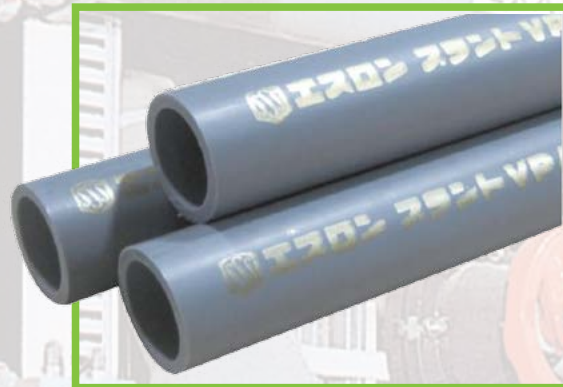


## UVS - VP

High UV disability surface of UVS is coated by UV resistance plastic.

Suitable for exposed piping.  
No painting needed.

Size: 20A - 200A



## Plant VP Pipe

PVC Pipe for chemical application.  
Ultimate chemical and corrosion resistance with particularly formulated PVC material.

Size: 16A - 300A



## Eslon Valve

Body Material: PVC-HT-PP-PVDF

Size: 16A-600A

Seat: EPDM-FKM-PTFE

Option: Limit Switch - Positioner - Speed Controller - SpaceHeater



Gear Type  
Butterfly Valve



K Type  
Electric Ball Valve

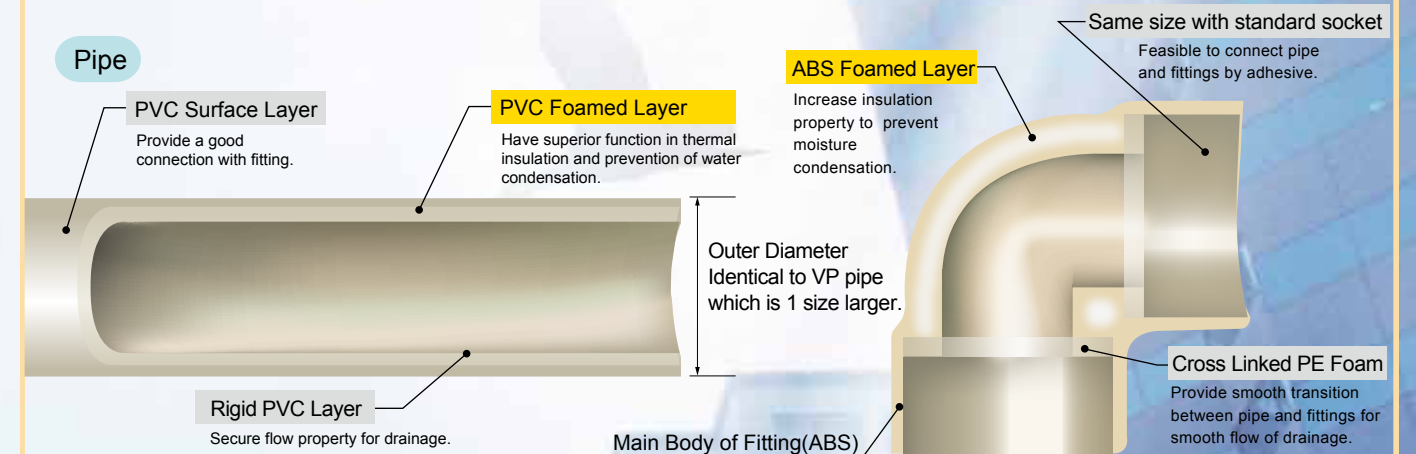


Pneumatic Diaphragm  
Valve Type F

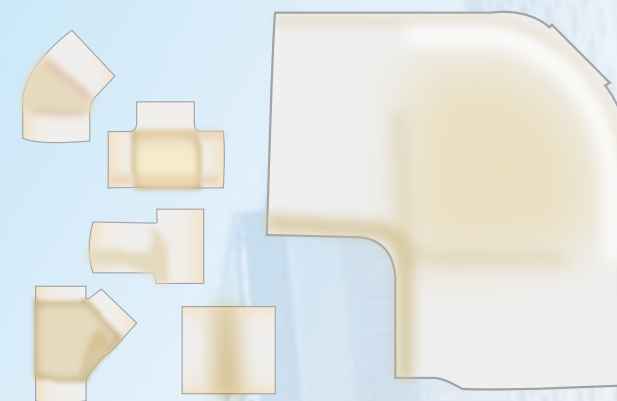
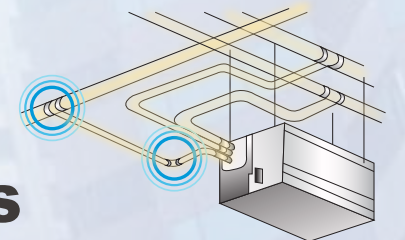
# AC Drain Pipe and Fittings !

Water condensation is prevented by foamed layer.

Both Pipe and Fittings have a foamed insulation layer. This prevents whole plumbing from water condensation without having outer insulation material.



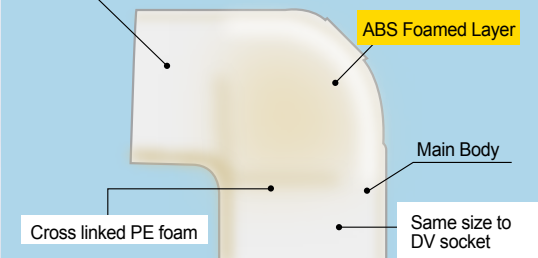
## Transparent AC Drain Fittings



### Structure

#### Transparent Material (ABS)

Easy to conduct visual check to avoid insufficient adhesive or insufficient insertion.



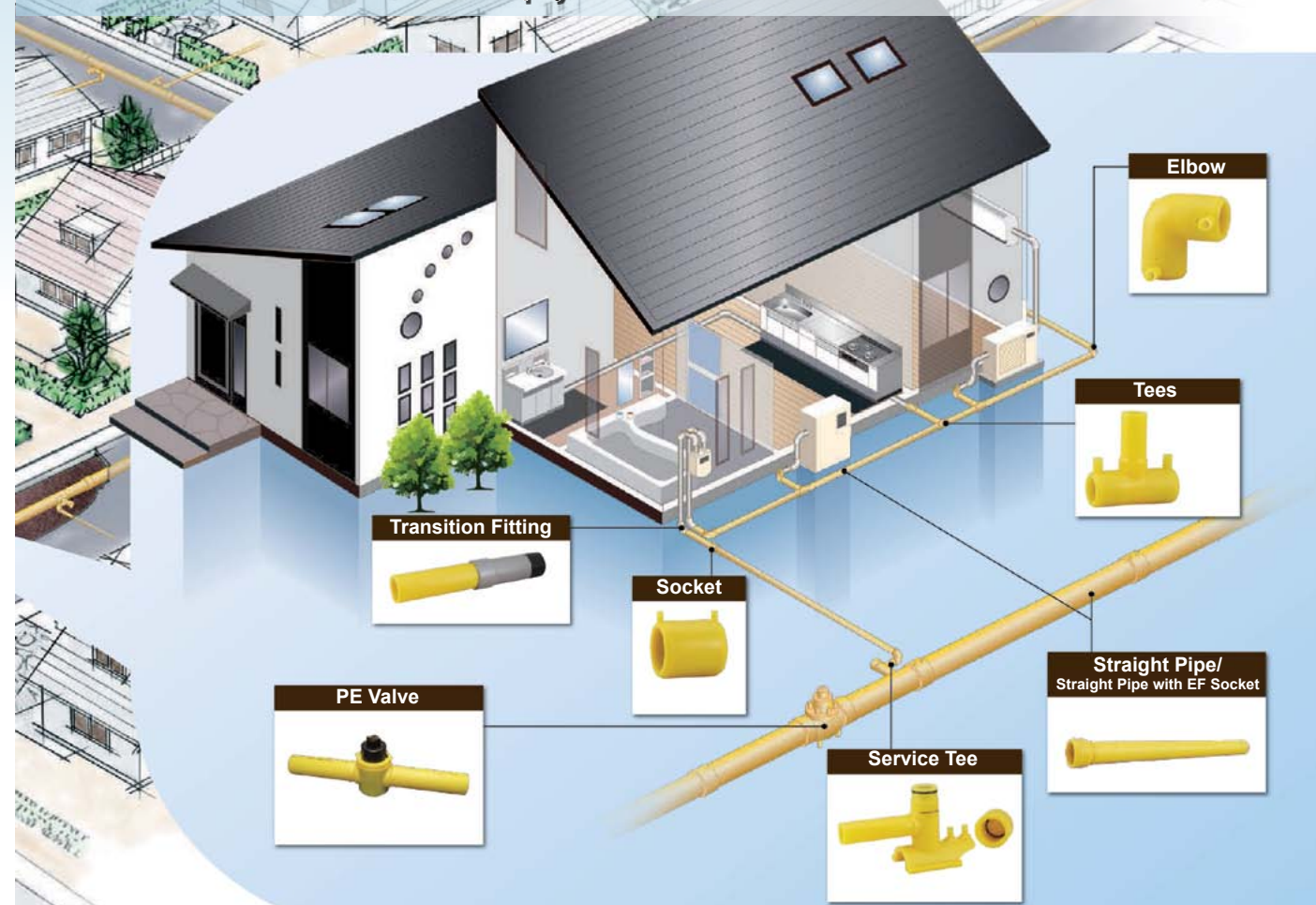
Easy to check connecting condition



# Eslon

## Polyethylene Pipe and Fittings for Gas Distribution System

Comply with JIS K 6774 / 6775



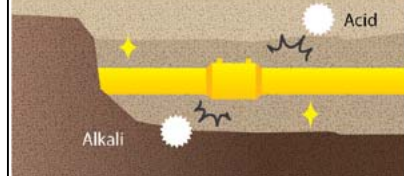
### Earthquake Resistance

Medium density polyethylene pipe is quite flexible. It shows better performance than conventional piping material for subsidence of ground and earthquake



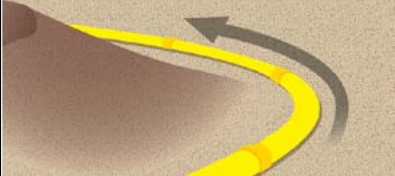
### Corrosion Resistance

It is quite chemically stable material. It does not corrode even directly buried into the ground due to its high electric insulation property



### Easy Installation

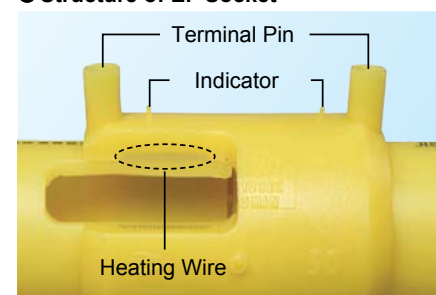
It is light weighted. Moreover, the use of EF fitting allows to conduct weld connection in narrow space. Those features make it easy to install. Due to the feature of flexibility, it can accommodate bended pipe laying.



### EF Welding

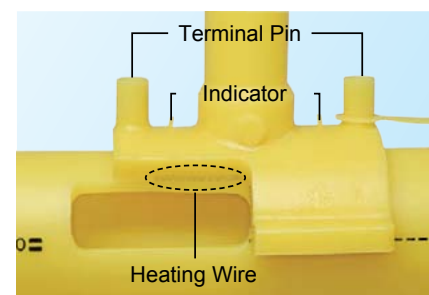
Pipe and Fittings is integrated by applying EF Welding for the joint between pipes.

#### ● Structure of EF Socket



Socket

\*The picture is partially cut sample.



Saddle

Thermoplastics Polyethylene (PE80) piping system using underground for delivery of petroleum

## ESLON BARRIER PIPE SS system

Qualified systems of KHK  
(The Hazardous Substance Safety Association in Japan)

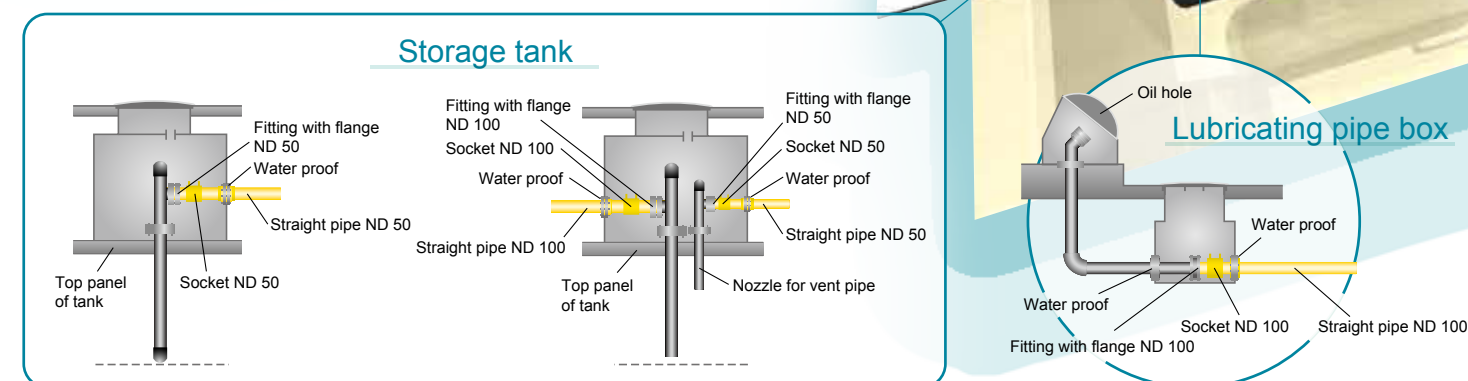
(Certificated number 0066)

ESLON BARRIER PIPE SS system secures integral construction of pipe route with EF fitting in addition to the barrier resin layer of the pipe by original technology of multilayer and provides oil leak measure over the pipe route by using a fitting with flange for the connection to steel pipe at the place where the sump\* was placed. This offers which can consider the safety measures and soil conservation of the petrol gas station. Please use it for restructuring of the piping systems for the petrol gas station which is required to switch from the metal and steel pipe to the our systems.

\*Sump: Box installed in the portion where flange junction is connected between the tank top and various equipments



### Example of pipe connection

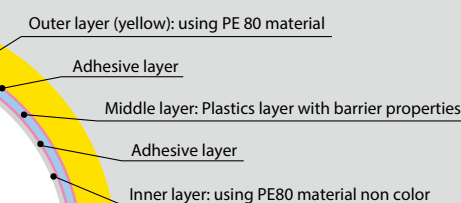


### ESLON BARRIER PIPE SS system

### Features

#### Double barrier properties 3 type-5 layer structure.

Our original technique for multilayer extrusion molding enabled three type-five-layers structure pipe to be completed. Polyethylene pipes with a long track record for resin materials for gas distribution was provided in the outer layer and the barrier resin layers with the permeation control performance of the organic solvents (petroleum) for the intermediate layer. Furthermore, in order to protect the barrier layer, the polyethylene layer was provided also in the inner layer for high barrier properties with the double barrier.



#### Applicable (purpose) fluid Transportation of various kinds of oil is possible.

It's the plastic piping system developed for oil transportation. So, it can be used for transport piping of gasoline (high-octane gasoline, regular), light oil, heavy oil, kerosene, and waste oil. Moreover, it can be used also for E3 (ethanol 3% mixed gasoline), E10 (ethanol 10% mixed gasoline), ETBE3 (ETBE3% mixed gasoline), and ETBE7 as a biomass fuels use (ETBE7% mixed gasoline).

#### Feature of PE materials The feature of polyethylene pipe is inherited.

For the material of using polyethylene part, the same resin (PE80) as that of the polyethylene for gas pipe with the performance for 30 years or more is used. It has various performances which the polyethylene pipe has.

#### Flexibility

It is resistant to the ground movements, such as earthquake and ground subsidence because of its flexibility.

#### Lightweight and easy installation

It is lightweight, is easy to be handled, and improves installation efficiency.

	Unit mass (kg/m)
ESLON BARRIER PIPE	0.95
STEEL PIPE	5.31

\* Comparison in ND 50

#### Electric corrosion resistance

It has high electrical insulation. Volume resistivity:

$10^{-16} \Omega \cdot \text{cm}$  or more

\* Reference value of polyethylene resin (PE80)



# u.PVC Manhole

## Characteristic of inspection cambers and small type manhole made of Unplasticized PVC

### Water tightness

- In comparison to the conventional cover made of concrete, this product has high dimensional stability as it is made of U-PVC.
- Since the joint portion is made of rubber ring, there is no intrusion of underground water or leakage of filthy water.

### Facilitated construction

- As it is light weight and compact, it is easy to transport, installation in small space
- Handling is easy, installation is quite easy.

### Self cleaning

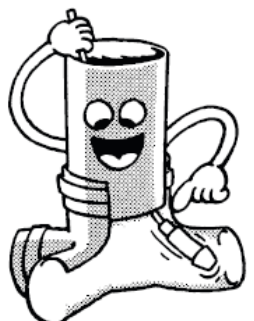
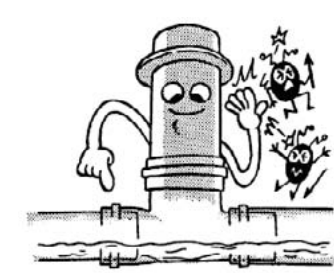
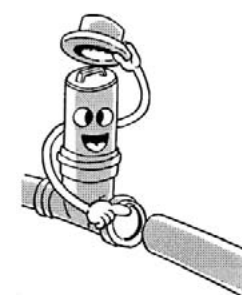
- Because of smooth inner surface, there is no stagnation of dirty water

### Easy maintenance

- Since the corner portion between piping and raising portion has smooth curve, it is easy to inspect and clean them.

### Economics

- Because of its compact shape, it is possible to reduce the excavating width which save the installation cost.





# TECHNICAL ECONOMIC INDEX COMPARISON

NO	CONTENT	OPITIONS 1 (Using Concrete)	OPTION 2 (Using PVC)
1	Technical	* Concrete chanel rouhness ( around 0.013) needs, large slope of culvert to reduce sludge and maintain speed of flow.	*PVC chanel roughness is samll ( around 0.009) so that it reduce sludge and maintain speed of flow.
		* Joint of culvert is breakable, which leads to water leak.	*Joints of pipe and inspection chamber use dedicated glue to ensure waste water does not leak.
		* Structural member of large size occupies more space on the ground. Volume of earthwork is large.	*Structural member of small size, low area on the ground ,so it significantly reduce the volume of earthwork.
		*Mostly produced and manufactured in construction side.	* Mass-produced in factory.
		* Require more mechanized machinery for construction.	* Require simple machinery for construction
2	Economic	* Working volume is big , so the cost of management and construction is high.	*Total costs is low because of small working volume.
		*Sewers and materials are heavy so the shipping and installation costs are high and construction time is long.	*Equipment and Structural member are light-weight so easy to transport with big quantity and shorten construction time
		Cost of construction: P1 = VND 2.376.000/ linear metre	*Cost of construction: P2 = VND 2.138.000/ linear metre

**“WHY THE COST OF WASTEWATER SYSTEM OF PVC is cheaper than system of concrete ?”**



- ▶ “PVC pipe is smoother than concrete pipe.
- ▶ PVC pipe can ensure the flow even with a small slope.
- ▶ Thus, with little slope, the amount of land to be excavated will decrease.
- ▶ In case of using the system of concrete, every 20~30 meter just need to put a manhole. Meanwhile, if using the system of PVC, every 50 meter should put a manhole.
- ▶ Therefore, with the same distance, the number of manholes will be reduced if use sewage system of uPVC.
- ▶ Sewage systems made of concrete need to be replaced in 10-15 years. Even so, PVC products can be aged over 50 years.
- ▶ Therefore, operating costs will be reduced.”

## LAND DIGGING&BURYING COST

Material	Dimension (mm)	Ditch width (m)		Outside diameter (m)	Amount of land digging and burying (m³/m)		Cost of digging and burying (US\$/m)
		Bottom	Surface		Amount of digging	Amount of burying	
u- PVC	200	0.62	1.52	0.22	0.96	0.92	4.74
Concrete	300	0.80	2.02	0.40	2.28	2.16	10.95

## TOTAL COST

Material	Dimension (mm)	Cost of material (US\$/m)	Cost of construction (US\$/m)	Cost of digging and burying (US\$/m)	Total cost (US\$/m)
u- PVC	200	29.97	3.06	4.74	37.77
Concrete	300	16.55	18.31	10.95	45.81

“Benefits of using u-PVC products for wastewater system  
Comparison between u-PVC products and concrete products in Vietnam market ( relative percentage)”

Kind of product	Diameter (mm)	Material price (USD/m)	Cost of set up (USD/m)	Cost of digging and burying (US\$/m)	Life cycle (years)	Replace times in 50 years (times)	Maintenance cost in 50 years	Total cost in 50 years (USD/m)
u- PVC	200	29.97	3.06	4.74	50	0	0	37.77
Concrete	300	16.55	18.31	10.95	20-30	1.0 – 2.0	1.0 – 2.0 + Construction cost + Earth-work cost	45.81 – 62.36

*“If using concrete products, it costs more expensive 1-2 times.*

Wastewater system is an indispensable system to eliminate waste water discharged from daily life and industry, to improve the environment and conserve fresh water resources. SEKISUI provides the necessary products, as well as information on how to install, use sewage systems for your benefit. For inquiries or questions, please contact us at any time so that we can serve you best.”

*Let's join us in improving system dirty water and wastewater in Vietnam!*



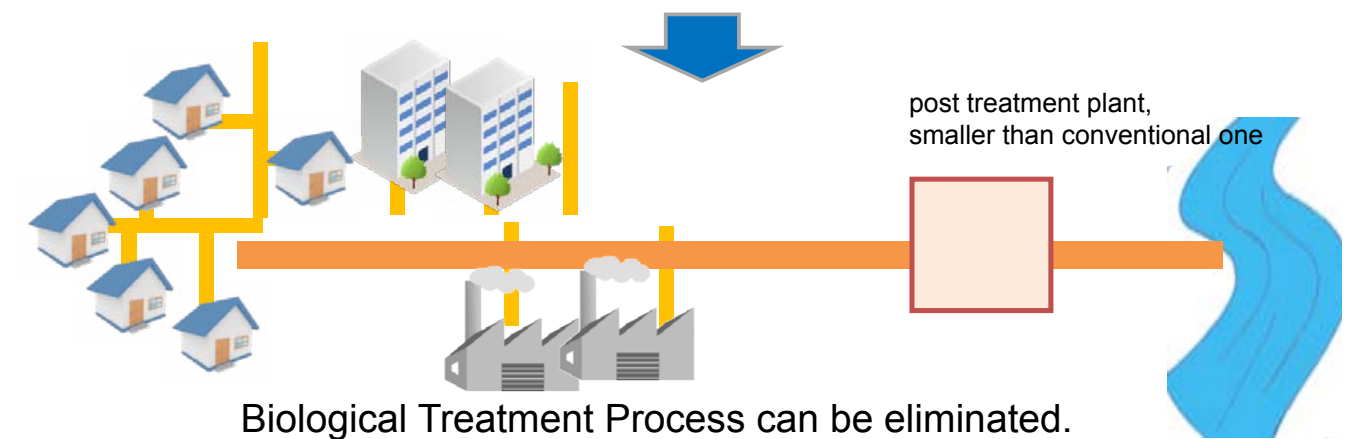
## New Materials

### Disadvantages of conventional sewage treatment system

- High investment cost for treatment plants
- Designed with fixed capacity
- Need large amount of energy for e.g. aeration
- Long distance transport to centralised treatment plant
- High maintenance cost
- Space and location of treatment plant is a sensitive matter

**The treatment process is transferred from the plant into the pipe network**

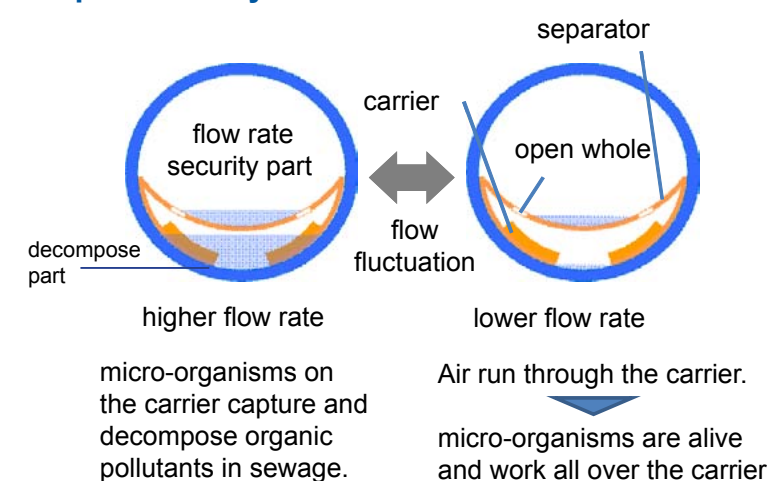
### In-Pipe Purification Process



**Increase the density of micro-organisms in the pipeline**

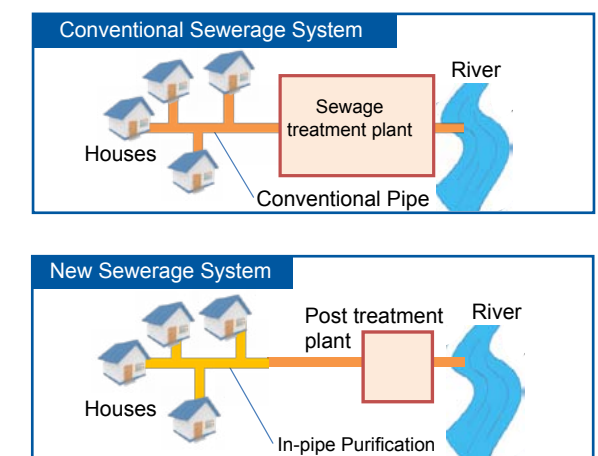
**Keep micro-organisms in pipe exposed to sewage and air alternatively**

**Optimize its function to decompose organic pollutants by oxidation**



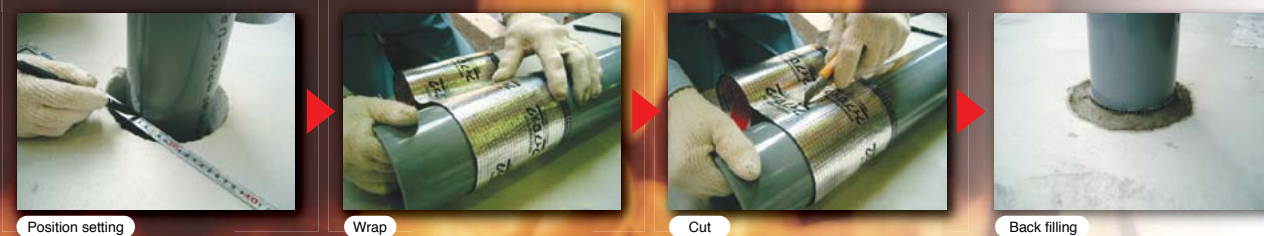
### Advantages of In-pipe Purification

- Energy Efficient. It uses gravimetric potential energy only. It can work even in emergency, as no electrical energy is needed.
- Operating cost, initial cost, and life cycle cost can be reduced.
- Reduce emission of carbon.
- Purification process takes place immediately after pipe installation.





**Fi-Block is tape to prevent fire penetration.**  
**It can be installed easy and speedy. Just one wrap.**



**Mechanism how to perform fire resistant**



**Feature**

- Fire protection treatment of each compartment can be conducted just by wrapping.
- Applicable for any pipe and size by just one single tape.
- Certified by Minister of Land, Infrastructure and Transportation, and examined by Fire Protection Equipment and Safety Center of Japan

**Line Up**

Product	Application	Part #	Thickness	Width	Tape Length	Rolls per case
Fi-Block for Sleeve	for Wall and Floor	TBBZ001	0.66mm	60mm	2.0m	12 Rolls / Case
Fi-Block for PVC pipe	for Wall	TBCZ002	2.25mm	110mm	1.5m	6 Rolls / Case
	for Floor	TBCZ001	2.25mm	160mm	1.5m	6 Rolls / Case
Fi-Block for Metal reinforced PE pipe with lagging material	for Wall	FIB - FC	4.24mm	120mm	1.3m	6 Rolls / Case
Fi-Block for PE pipe	for Nominal Diameter 25 to 75	FIBAW	2.25mm	110mm	1.5m	6 Rolls / Case
	for Nominal Diameter 100	FIBAW1H	6.09mm	110mm	0.42m	6 Rolls / Case
	for Nominal Diameter 200	FIBAW2H	2.50mm	90mm	1.0m	10 sets / Case

**Fi-Block for Sleeve**

Applicable for both Wall and Floor

In case for Sleeve

Nominal Diameter	ø22	ø25	ø28	ø30	ø36
Number of Places	20	18	17	16	14

In case of EsloPex CV

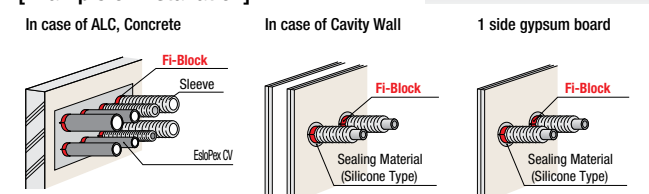
Nominal Diameter	ø10	ø13	ø16	ø20
Number of Places	32	26	22	18

Applicable Pipe Type

Sleeve pipe method	RC / ALC				Cavity Wall	1 side gypsum board
	Round Hole	Square Hole	Subway Method			
Cross Linked PE Pipe	○	○	●	○	○	○
2 Cross Linked PE Pipes	○	○	●	○	○	○
EsloPex CV	○	○	—	—	—	—
Polybuten Pipe	○	○	●	○	○	○
Metal reinforced PE Pipe	○	—	●	—	—	—
Cable	○	—	—	—	—	—

\* RC --- Reinforced Concrete  
 ALC --- Autoclaved Lightweight Concrete

[Example of Installation]



Direct pipe method	RC / ALC				Cavity Wall	1 side gypsum board
	Round Hole	Square Hole	Subway Method			
Cross Linked PE Pipe	○	○	—	○	○	○
Cross Linked PE Pipe with lagging material	○	—	—	—	—	—
EsloPex CV	○	○	—	○	○	○
Polybuten Pipe	○	○	—	○	○	○
Polybuten Pipe with lagging material	○	—	—	—	—	—
Metal reinforced PE Pipe	○	○	—	○	○	○
Rigid PVC Pipe	—	○	—	○	○	○
Cable	○	—	—	—	—	—

\* The above is just general reference. The actual selection of piping material depends on material of wall and/or floor. Please refer to page 8 and 9 to confirm.

**SEKISUI FULLER**

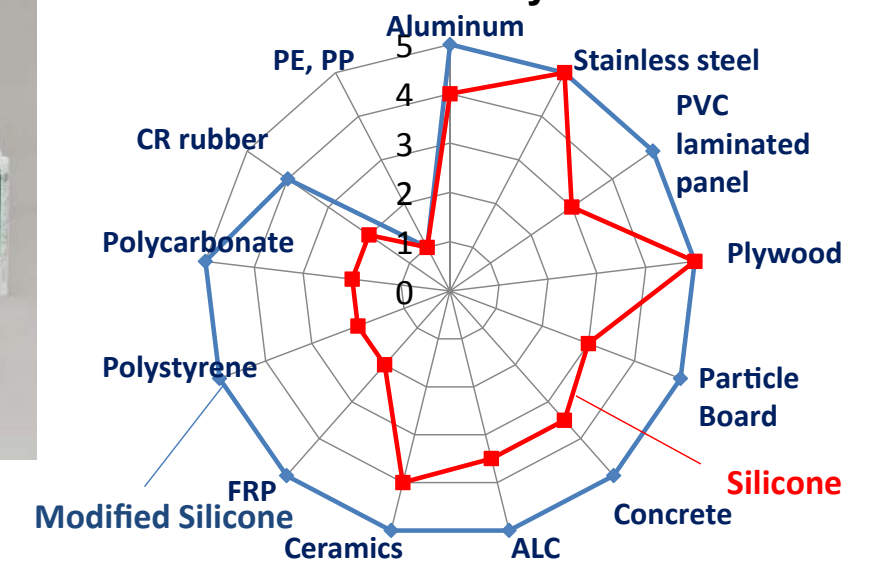


**Environment Friendly**  
 (Low VOC, No isocyanate)

**Easy Construction**  
**Long - lasting**  
 (High durability)  
 (High Weatherproof)  
 (Low Pollution)

**Modified Silicone**

< Adhesion to a Variety of Materials >



< Excellent Workability (Thixotropic index) >

	Competitor's adhesive	Sekisui MS
Immediately after applying it horizontally		
25 min. after applying it		

**MaskingTapes**

For finishing Interior Works, Interior Works, Painting, Temporary Masking for Moving etc.,

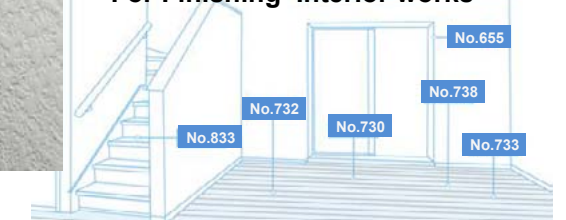


< Masking Tapes Lineup >

Product No.	Base Material	Color	Thickness (MM)	Adhesion (N/10mm)	Ball Tack No.
No.738	PE	● ● ○ ●	0.105	2.2	16
No.732		●	0.11	2.2	15
No.733		● ○	0.11	2.1	19
No.730	PET cloth	● ● ○	0.13	2.3	16
No.739		●	0.13	2.9	16
No.833	PE film	● ● ● ● ○	0.12	2.2	12
No.655	Paper	●	0.1	1.5	12
No.653		○			



<For Finishing Interior works>



<For Finishing Exterior works>





# Aluminum Composite Panel

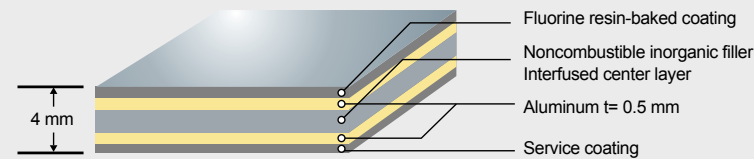
## PLAMETAL : FRW405 (Non-combustible series)

### Features



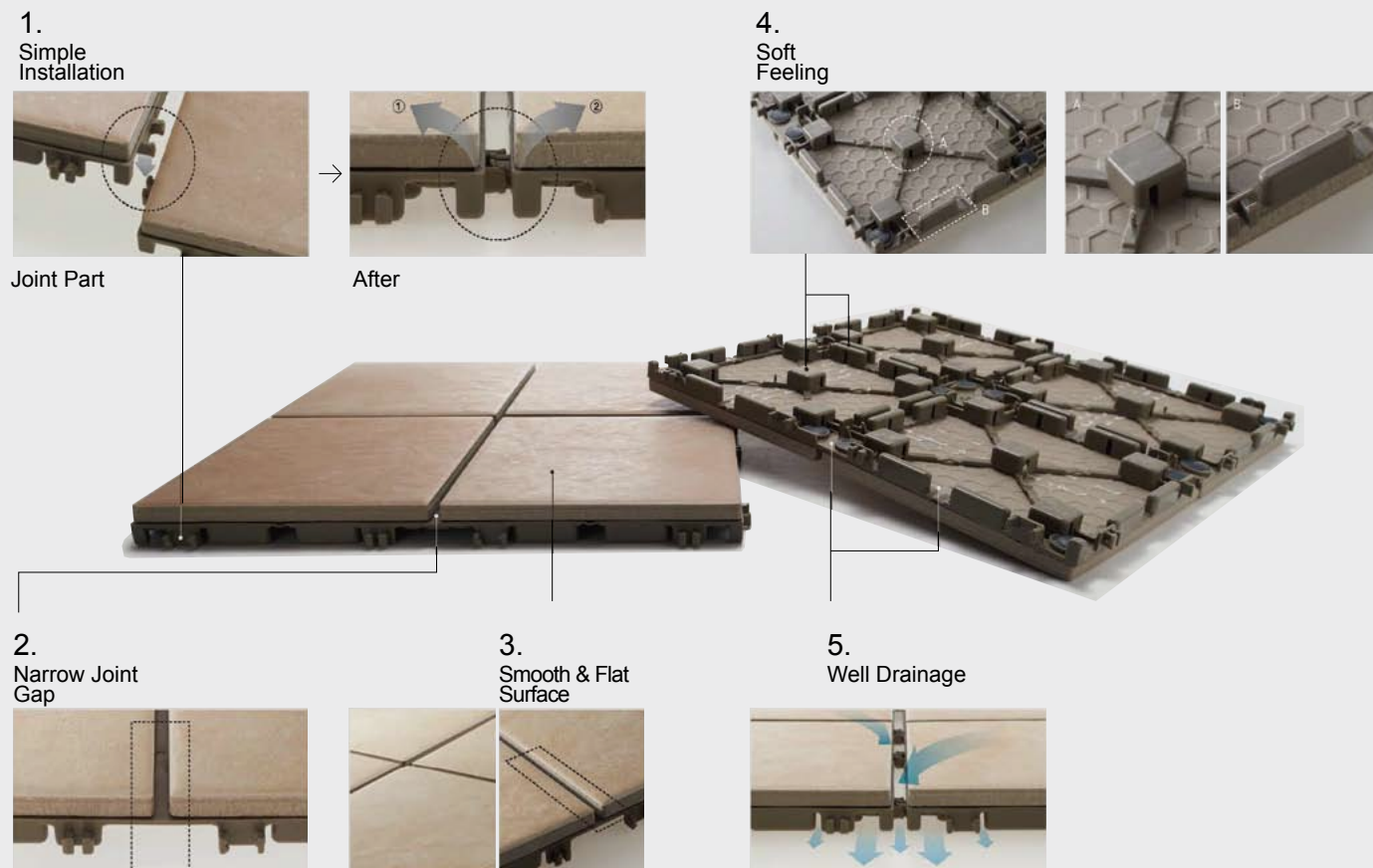
**PLAMETAL FRW405**  
(Certified noncombustible material: NM-1968)  
Weight: 7.6 kg/m<sup>2</sup>

Standard face material dimensions  
1250 mm x 2500 mm  
1000 mm x 2500 mm



- FLATNESS** Excellent flatness derived from Sekisui's original laminate technology.
- RIGIDITY** With lightweight, PLAMETAL has high rigidity. PLAMETAL FRW405 is equivalent to 3.1 mm thick aluminum sheet in terms of bending rigidity.
- WORKABILITY** By the lightweight and composite structure, PLAMETAL FRW405 provides easy workability such as bending, cutting and drilling.
- DURABILITY** PLAMETAL FRW405 painted with fluorocarbon has superior corrosion resistance, weather resistance and chemical resistance.
- FIRE PERFORMANCE** PLAMETAL FRW405 is certified as noncombustible material by MLIT.  
\* MLIT = Ministry of Land, Infrastructure, Transport and Tourism, Japan  
\* BS = 476 Part 6 (Class 0) and Part 7 (Class 1)
- SOUND REDUCTION** PLAMETAL FRW405 has superior sound reduction performance.  
\* Sound transmission loss of PLAMETAL FRW405 = 250Hz : 20.2 1000 Hz : 280.0

## Decorating Materials for Balcony RIENA (CREGARE Series)



# Solution for rainwater flooding on road

## CROSS-WAVE reduces rainwater runoff and proposes effective use of rainwater

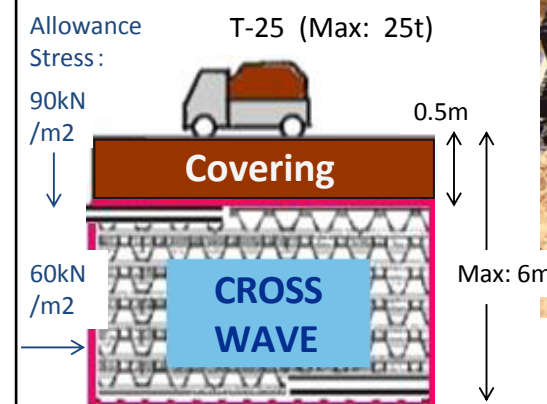
CROSS-WAVE is a plastic material of underground rainwater storage / recharge system constructed by piling up. Since it was launched in 1998, it has established the number one position in the industry as achieving 3,800 cases of construction

and 1,000,000m<sup>3</sup> of total storage capacity. Especially, its staggered structure provides outstanding structural stability and security that it has been widely used.

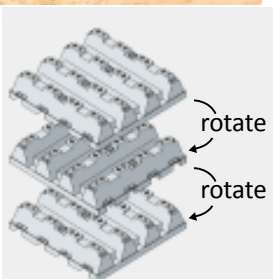


## “Cross Wave” (Rainwater Storage System)

**for Water Recharge  
for Fire Fighting  
for Reuse  
for Flood Control etc.**



- Easy Installation
- High Void Ratio
- No Pollution
- Compact Storage





# Pipeline Renewal Method

## Sekisui's Pipeline Renewal Solution

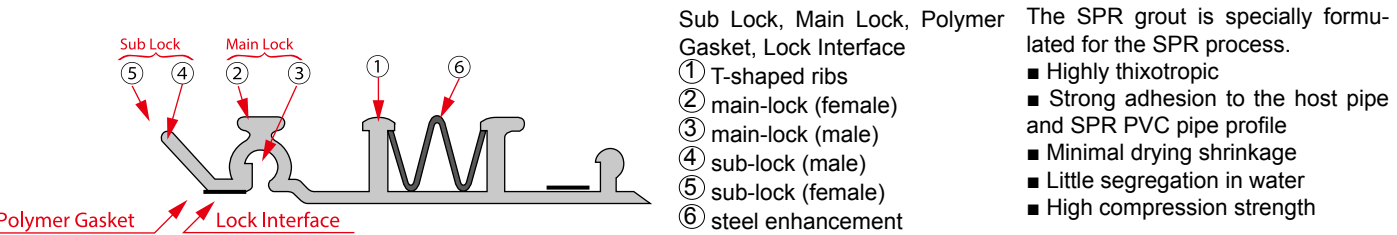
Pipelines are indispensable to our daily living. However, their deterioration progresses steadily through years of use after the installations. Therefore, immediate measures are required to be taken for those pipelines that do not meet the initially-planned functions any more. Rapid urbanization progresses in the course of modernization of our society. But, big-scale construction and installation works are not accepted as they cause the factors of social environment discouragement, such as traffic congestion or ambient noise. The era, in which new pipelines have been installed for the problem-solution, is facing its end now. We are now seeing a new era for pipelines rehabilitation by utilizing maintenance management and existing pipelines. First, we grasp the status-quo of the pipelines. Next, we survey and check up effective maintenance management. Then, we submit our total proposal of the checkup findings and life pipelines. This is Sekisui's Pipeline Rehabilitation Solution, by which we contribute to society.

### SPR™



### About the SPR Method

The SPR process is unique as it can provide a customized structural solution to aging pipelines and/or a corrosion barrier and is designed for installation without flow interrupt. It can be engineer to correct hydraulic anomalies as well as restore the slope of the original pipe. The patented double locking profile creates an impermeable mechanical lock that can withstand strong deformational forces. SPR PVC profiles have a Mannings "N" Value of .010. SPR PVC materials have been tested in accordance with industry standards and approved to meet the following: ASTM F1697-07 - Standard Specification for PVC Profile Strip for Machine Spiral-Wound Liner Pipe Rehabilitation of Existing Sewers and Conduits 6-180 inches. ASTM F1741-07 – Standard Practice for installation for Machine Spiral-Wound PVC Liner Pipe for Rehabilitation of Existing Sewers and Conduits.

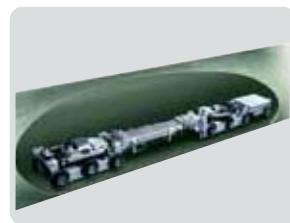


### How the SPR Method Works

- ① Prior to installation the pipeline is inspected and cleaned.
- ② The PVC profile is unspooled and fed into the SPR Winding Machine. The SPR Winding Machine pulls the SPR profile into place and engages the dual locking mechanism.
- ③ After Winding, bracing is installed to prepare for grouting.
- ④ After the SPR profile has been locked into place, the annular space is grouted with special high-strength grout.
- ⑤ The frames are removed and the pipe is ready for service.



## Inspection System



### Impact Elastic Wave Inspection and Diagnosis System

Impact Elastic Wave Inspection and Diagnosis Method is to inspect damage, crack and reduction of wall thickness quantitatively by analyzing distribution of frequency through generating impact elastic wave by stroking pipe.

## Image Expansion System

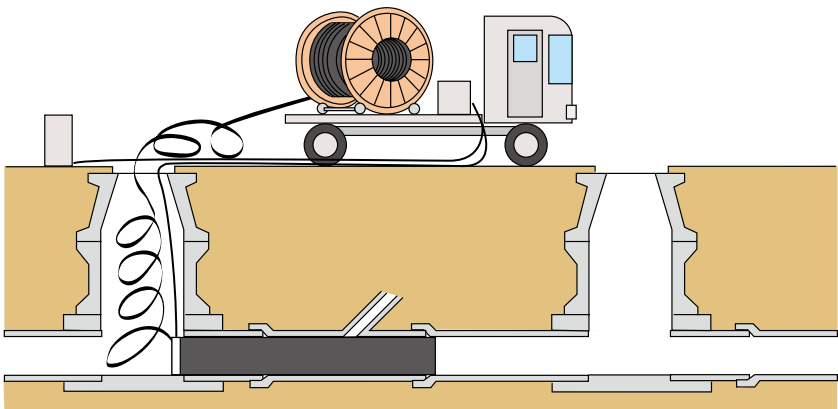


Conduct speedy inspection and diagnosis for whole circumference inside of pipeline, just by having equipment go through the pipeline straight with 190° degree extremely wide range view camera that exceeds fish-eye view angle.

### SPR™PE (former RIBLINE™)

SPR™PE is the excellent alternative to slip lining. SPR™PE system requires no excavation and gives you a solution without any joints. You simply wind out the new pipeline directly into the old.

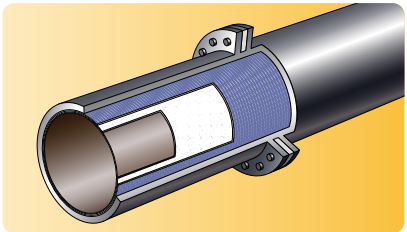
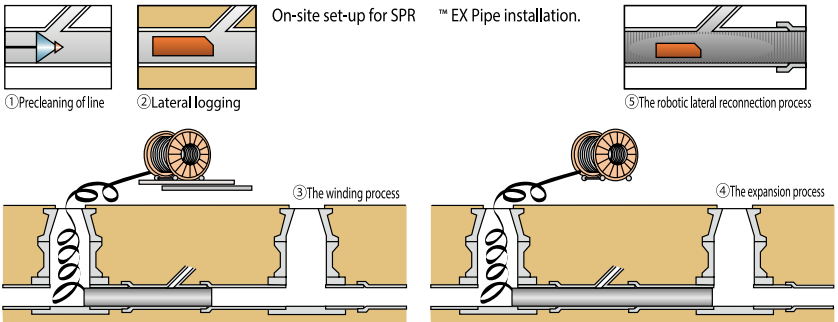
Heavy walled slip lining pipes designed to survive both the installation process and their is installed no longer required. SPR™PE is installed by spirally winding a profile to form a pipe rather than pushing pipe sections. SPR™PE uses the lightest, lowest cost, strongest technology available today



### SPR™EX (former EXPANDA™)

Builders have replaced expensive solid structures with I-beams, trusses and frameworks that maximize strength and minimise weight. SPR™EX follows these principles providing strong and lightweight pipeline rehabilitation solution.

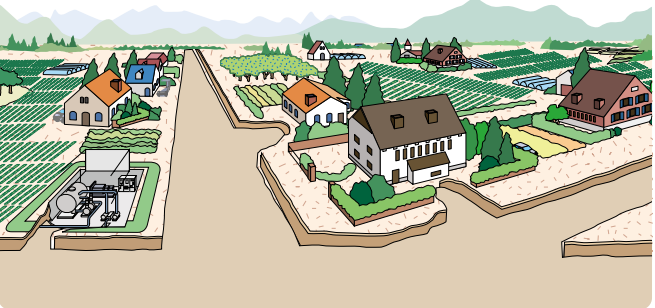
The installation process is quick, easy and totally in control. It can be stopped, restarted and even reversed, eliminating any risk of on site failures.



### NORDIPIPE™

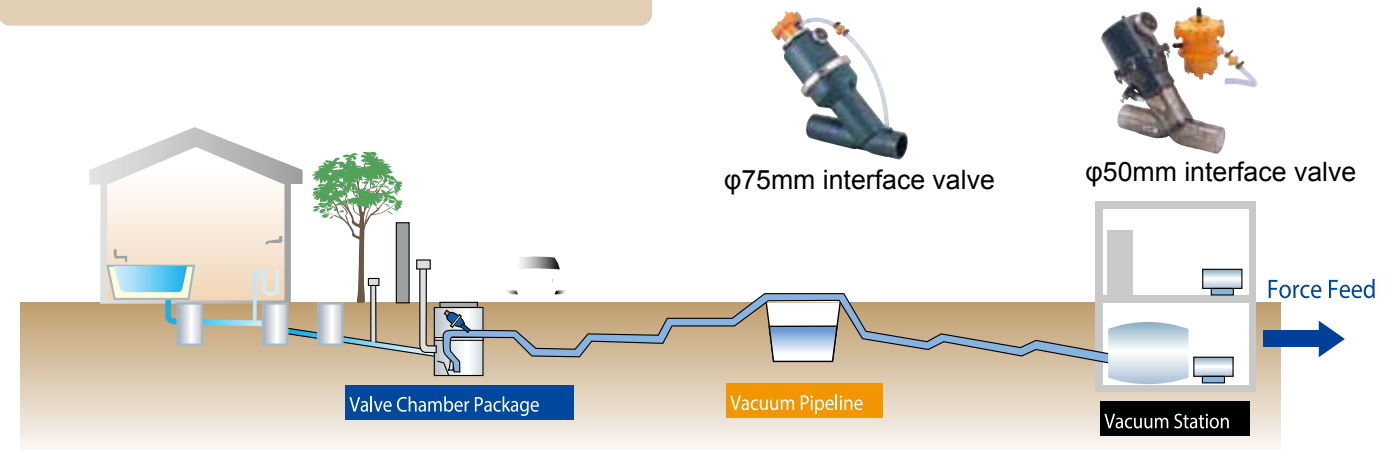
NORDIPIPE™ liner is a glass-fibre reinforced pipe liner suitable for the rehabilitation of pressure and gravity pipes. NORDIPIPE™ is the first liner that can withstand both internal and external pressure.

## NEW PIPELINE



### "SIVAC" SYSTEM Vacuum Sewer System

The "SIVAC" vacuum sewer system being a wastewater collection system can be utilized in urban, residential agricultural and fishery housing areas, and resort and recreational areas, where the topography is flat and there is high water table and/or soft ground conditions.







## **SEKISUI VIETNAM CO.,LTD**

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