



Application for  
**Construction  
Pipe & Fitting**

[www.dury.com](http://www.dury.com)

**GLOBAL LEADER COMPANY  
DURY CHEMICAL**



**DURY CHEMICAL**

# NEW IND DURY CHEMICAL REVOLUT

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## MESSAGE

**Dury Chemical  
will open a new  
horizon  
for the pipe &  
fitting industry  
of the 21st  
century.**

Dury Chemical, concerning more than anyone about a comfortable life of residents, has continued to invest and research in order to satisfy the diverse needs of customers.

As a result, has developed low-noise NC solutions that drastically reduced drainage noise in 1988, EDR solutions for underground construction that greatly improved construction process and cost by solving the problems of existing cast iron pipes in 2015, and ultra-low-noise NC2 solutions that drastically reduced noise by applying innovative low-noise technology, and achieved excellent recognition of its technology from leading customers in construction area. In addition, we have secured and been maintaining high quality level with the largest production facilities, automated manufacturing processes, and the highest quality control system in its business field.

Under the goal of providing a pleasant living environment, we will fulfill its social responsibility and develop into a company that always agonizes and researches on the 21st century of infinite competition, based on the business philosophy of customer satisfaction.

**All employees of Durychemical**

# GLOBAL LEADER PIPES, **DURY CHEMICAL**

Durychemical's solution  
becomes a global standard.





## Customer Satisfaction

We are constantly investing and researching to provide a pleasant national living environment.



## Production Improvement

We are expanding production facilities, automated manufacturing processes and system.



## Cost reduction

We strive to satisfy both the company and customers with a cost strategy that maintains commercial performance and quality.



## Quality Improvement

By expanding automated manufacturing facilities and various quality tests, we maintaining high quality levels.





# Durychemical's know-how and expertise lead the future of plumbing system in the 21st century.



Company Name	DURY Chemical Co., Ltd.
CEO	Choi Baek-Kyu
Date of Establishment	1974
H.Q. / Sales Office	<b>H.Q. &amp; Factory:</b> 826-90, Saengnim-daero, Saengnim-myeon, Gimhae-si, Gyeongsangnam-do, Republic of Korea <b>Seoul-Incheon Office:</b> 33, Yonggu-daero 2469beon-gil, Giheung-gu, Yongin-si, Gyeonggi-do, Republic of Korea
Factory Area	Lot Area:76,529m <sup>2</sup> / Floor Area 22,952m <sup>2</sup>
Main Business	PVC Pipe and Fitting for Construction & Civil Engineering
Production Capacity	Pipe: 42,000t/yr, Fittings: 18,000t/yr

**1974.03**  
Establishment of Daesungchemical Co.

**1998.09**  
New Technology(NT) Mark  
(Noise Control Pipe & Fitting)

**2000.03**  
Obtained ISO 9002(KSA9002)

**2000.12**  
Obtained JIS

**2001.04**  
Selected as a venture company

**2004.07**  
Development of NC Pipe and Fittings  
(co-development with LG Chem.)

**2005.06**  
Establishment of Research Center

**2005.07**  
Certified specializing in components and  
materials at MOTIE

**2005.08**  
Selected as a technology-innovative  
SME (INNO-BIZ)

**2005.09**  
Opening a research division at KITECH

**2006.07**  
Selected as a Kibo A+ Member enterprise  
(Korea Technology Finance Corporation)

**2012.10**  
Registered in SAM  
(The System for Award Management - USA)

**2014.06**  
Designation as Procurement: PVC Sewer Chamber

**2015.01**  
Development of EDR Pipe and Fittings

**2018.11**  
Presidential Industry Award

**2019.06**  
Development of ultra-low-noise pipe  
and fittings solution : NC2



01

# Innovative Technology

Durychemical has continued to develop and improve various innovative technologies since 1998 when developed low-noise System(NC)



Technology  
Innovation





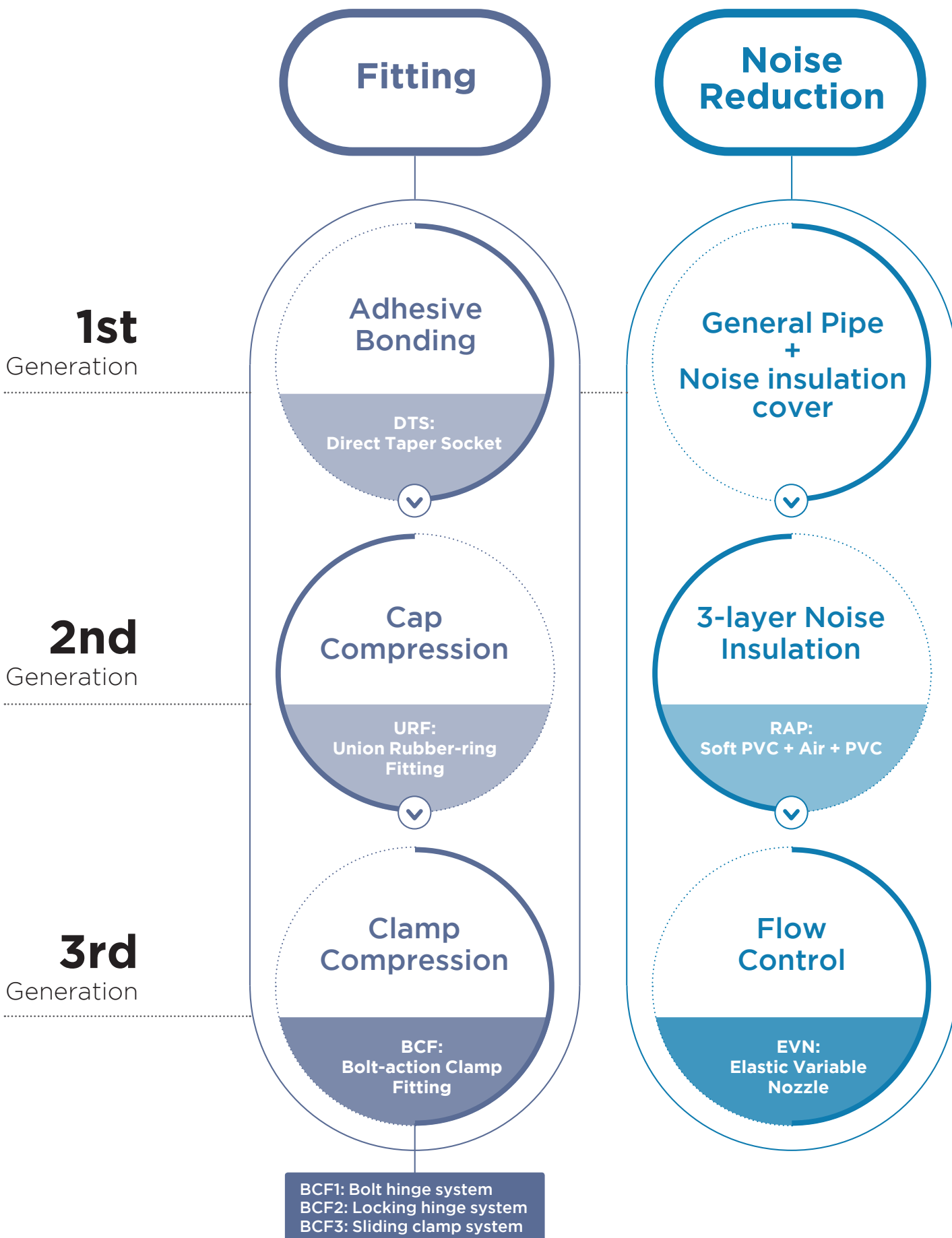
# TECHNOLOGY INNOVATION



Durychemical has been endeavoring to provide a comfortable living environment and a convenient construction environment in the field of construction and civil engineering, as well as plumbing solutions satisfactory to customers. We developed low noise pipes for the first time in the world in 1998. Since its first innovative product, Dury Chemical has continually developed and improved a variety of unique and innovative technologies. As a result, we have secured and patented its unique proprietary technologies in piping-related fastening technology, low-noise technology and has been continuously improving them.

## Applications Models

Product group	Model name	Fitting technology	Low-noise technology
Basement pipe	EDR	BCF1	X
	EDR2	BCF2	X
	EDR3	BCF3	X
Low-noise pipe	NC	URF	RAP
	NC2	BCF3	EVN



# TECHNOLOGY

## FITTING

Since its first appearance in 2015 by Dury, the BCF fastening technology, a third-generation new conception method following the DTS and URF, has been consistently preferred by customers due to its strong cohesion and easy assembly method.



### BCF, 3rd-Generation Coupling Technology

**1st** Generation

**DTS method**



**2nd** Generation

**URF method**



**3rd** Generation

**BCF method**

#### Overview

Chemical bonding between pipes and fittings with adhesive

Compress fitting with the tightening force generated by turning the cap

Tighten pipe and fitting using one-touch clamp technology

#### Material

Hard PVC

PP (pipe fitting, cap) + Rubber (ring)

Hard PVC (pipe, pipe fittings, cap)+ Rubber (Ring) + Metal (Clamp bolt)

#### Coupling method

Chemical adhesion

Cap tightening

Clamp Compression

#### Structure of connecting fittings

Body

Body, cap, ring

Body, clamp, ring, bolt, nut

#### Dedicated tools

Dedicated adhesive, bond brush

Special fastening tool

General electric drill

#### Workability / Workability / Cohesion strength



# TECHNOLOGY

## LOW-NOISE

In 1998, Dury Chemical developed the world's first low-noise piping solution to improve the living environment. This is an eco-friendly technology that has solved the problems of noise, dew condensation, and heat insulation, which are disadvantages of existing conventional products.



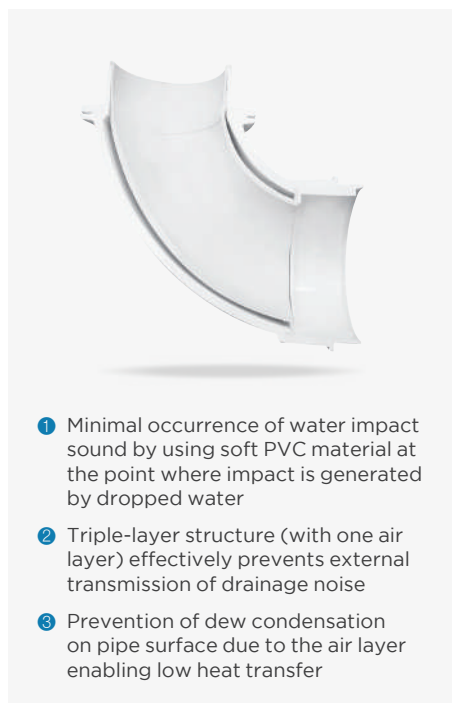
### 1<sup>Generation</sup> General piping + soundproof enclosing

It is a method where general single-layer pipes are wrapped with additional sound insulation material, restricting noise transfer and gaining a noise reduction effect. It has some disadvantages it requires a separate soundproofing cost (in addition to the cost of pipe installation), a long construction period, and a high possibility of defects.



### 2<sup>Generation</sup> Triple-layer soundproofing

In order to mitigate water impact noise in the elbow and to effectively block the external transmission of noise from the inside of the pipe, the product adopts the triple-layer structure, "the inner layer (soft PVC) + the mid-layer (air layer) + the external layer (hard PVC layer)." The product has excellent low-noise effect. Also, it is possible to construct piping economically and reliably because it does not require any external sound insulation material.



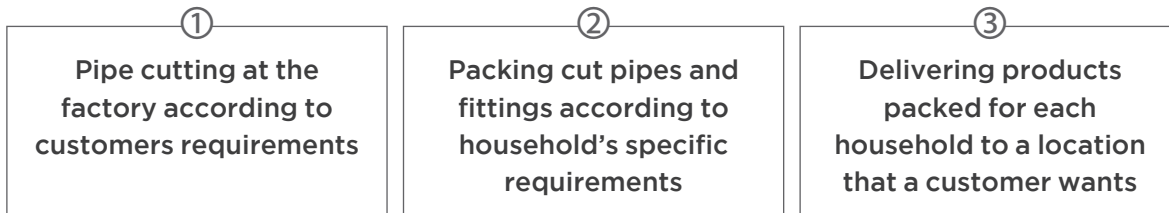
### 3<sup>Generation</sup> Variable Elastic Nozzle Technology

As an exclusive patent of Dury Chemical, it is an innovative technology that uses elastic variable nozzle (EVN) to control the movement of fluid and suppress the generation of noise.



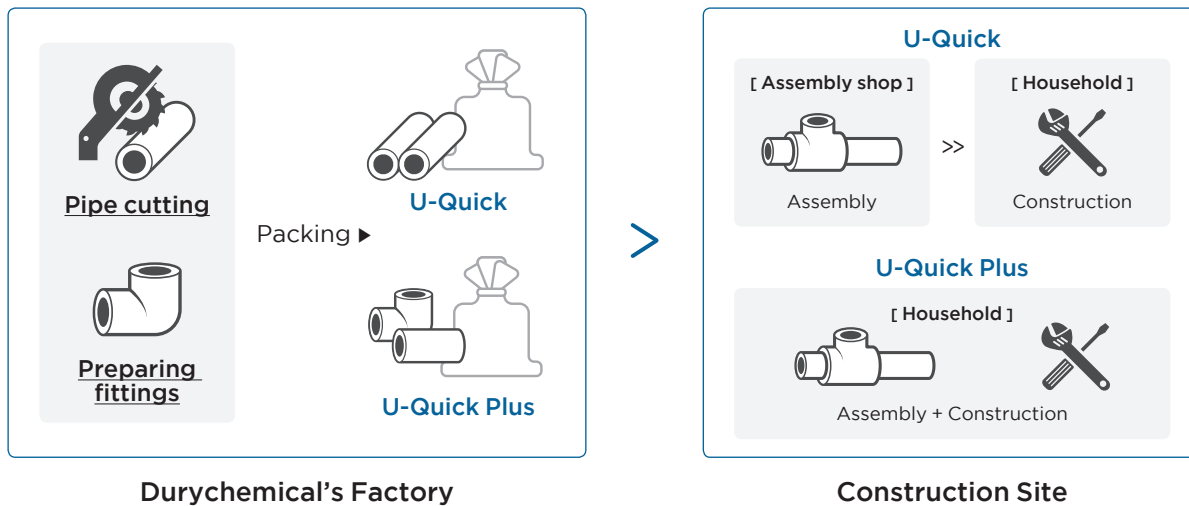
# U-QUICK SYSTEM

It is a one-stop custom pipe packaging solution that pre-cuts (at the factory) and packs pipes and fittings together requested by customers requirement and provides products and service in a single package form. Now customers can have access to quicker and more eco-friendly construction by using the U-Quick System.

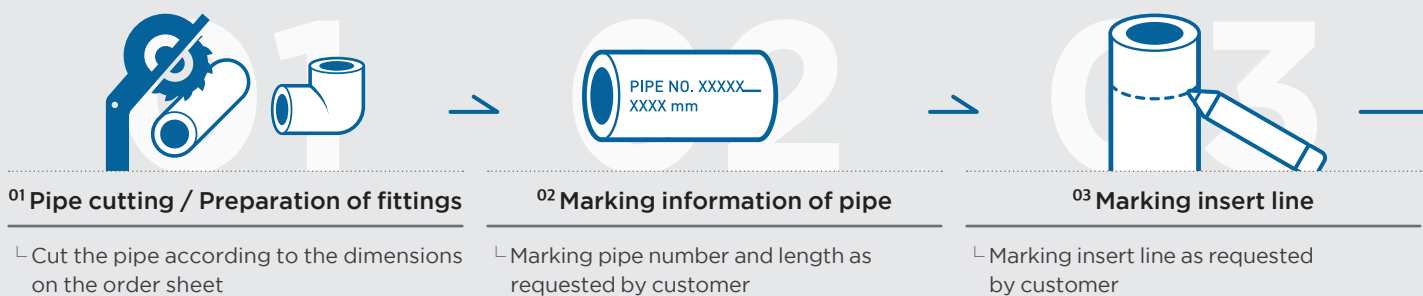


## Configuration of U-Quick System

U-Quick System is divided into U-Quick System, which supplies only cut pipes to each household, and U-Quick Plus System, which supplies both cut pipes and fittings together, according to a customer's request.



## Process of U-Quick+



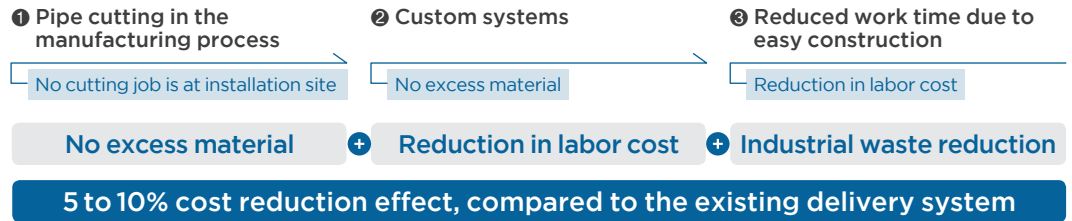


## Comparison of U-Quick System

	U-Quick	U-Quick Plus	Conventional methods
Pipe cutting	Factory	Factory	Assembly shop
Packing type	Pipe cutting and packing	Pipe cutting and packing of cut pipes and fittings	X
Assembly of connecting fittings	Assembly shop	In each apartment or house	Assembly shop

## Advantages of U-Quick System

### Cost reduction



### Environment improvement



## Precaution of U-Quick+ System

01. It is effective for both Durychemical and the branch to place an order.
02. Pipes more than two meters long are impossible to pack and therefore, order the pipe less than 2 meters length.
03. It is easy to give an order in advance to meet the due date.



↳ Inspecting items as taking photos  
Before packing

02

# Product of Dury Chemical

The best plastic pipe & fitting solution provider since its foundation in 1974.



Product



# EDR

# 01



EDR has a higher impact strength than cast iron pipes by application of high strength plastic materials. It is an eco-friendly product that can be used semi-permanently and does not have to be toxic or cause water pollution because it does not have scale or corrosion.



### Features

- Non-toxic and environment-friendly
- Easy to handle and construct with light weight and high mechanical strength
- Excellent weatherability and durability

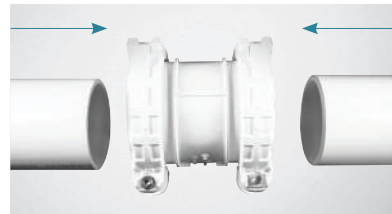
### Applications

- Basement drain piping
- vertical piping
- underground piping in the basement
- storm water pipeline
- factory wastewater piping

### Construction method



① Cutting



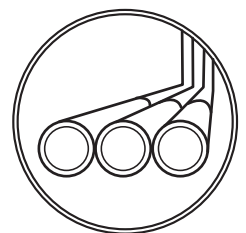
② Assembling



③ Clamp tightening (an electric drill) and finishing

### Precautions

- Direct screwing is prohibited on pipes and fittings.
- Use of high concentrations of chemical pipes and hot and high pressure pipes is prohibited.
- Spraying or painting chemicals or organic compounds (ex: acetone, thinner, creosote) and contacting with the fire can pose a risk the quality of the product.
- When storing outdoors, find ways to cover the tent so that it does not receive heat from direct sunlight.

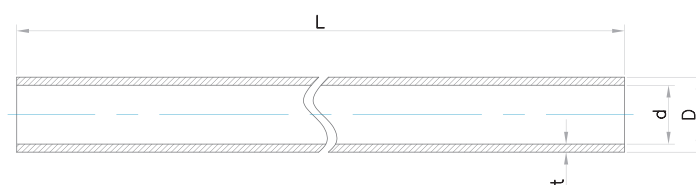


**BASEMENT**



# EDR Pipe

## EDR Pipe



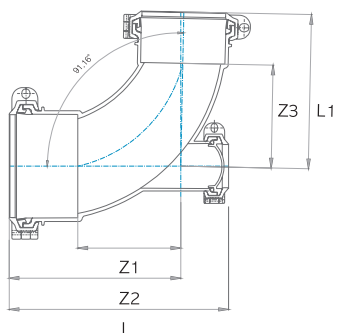
DN	Outer diameter(D)	Typ. thickness(t)	Inner diameter(d)	Typ. Length(L)
50	60±0.2	4.0 ↑	52.0	3m
75	89±0.3	5.0 ↑	79.4	3m
100	114±0.4	5.5 ↑	103.0	3m
125	140±0.5	6.5 ↑	127.0	3m
150	165±0.5	7.0 ↑	151.0	3m
200	216±0.7	7.5 ↑	201.0	3m
250	267±0.9	9.0 ↑	249.0	3m

\* The tolerance of the standard length is ±10mm \* The tolerance of Outer diameter is in accordance with KS

# EDR Fittings

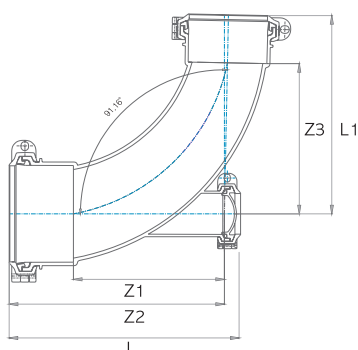
■ Plan to production / Unit: mm

## Sextia - Short Elbow



DN	Z1	Z2	Z3	L	L1
100	132	207	132	278	207
100 X 75	130	205	130	263	194
125 X 100	140	233	140	304	215

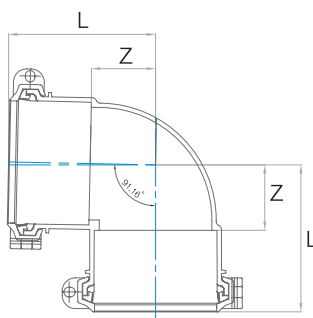
## Sextia - Long Elbow



DN	Z1	Z2	Z3	L	L1
75	220	284	220	293	284
100	220	295	220	313	295
100 X 75	220	295	220	313	284
125 X 100	220	313	220	340	295
150 X 100	220	330	220	363	295

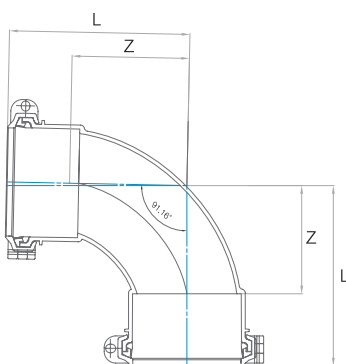
# EDR Fittings

## 90 Elbow (DL)



DN	Z	L
■ 50	42	87
75	50	114
100	60	135
125	75	168
150	88	198
200	113	253
250	145	305

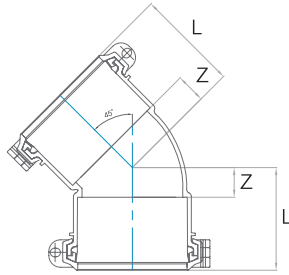
## 90 Elbow - Long (LL)



DN	Z	L
50	80	125
75	115	179
100	135	210
125	140	233
150	170	280
200	195	335

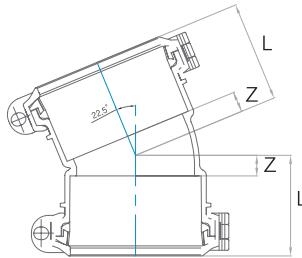
■ Plan to production / Unit: mm

## 45 Elbow (45L)



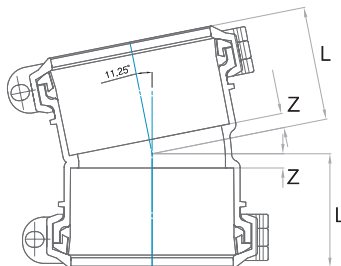
DN	Z	L
■ 50	18	63
75	25	89
100	31	106
125	38	131
150	43	153
200	53	193
250	68	228

## 22.5 Elbow (22L)



DN	Z	L
100	18	93
150	22	132

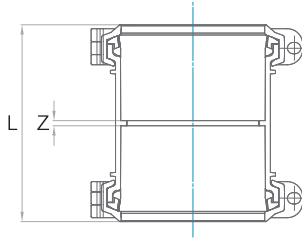
## 11.25 Elbow (11L)



DN	Z	L
100	10	85
150	12	122

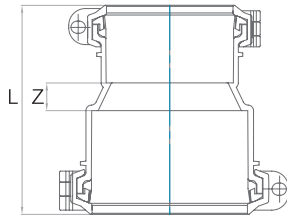
# EDR Fittings

## Socket



DN	Z	L
■ 50	4	95
75	4	133
100	5	155
125	5	192
150	6	266
200	6	287
250	12	333

## Reducer (IN)

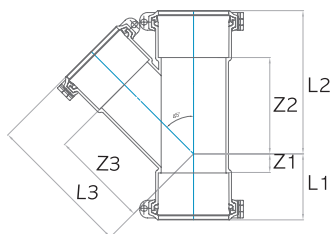


DN	Z	L
75 X 50	25	135
100 X 50	30	150
100 X 75	25	164
125 X 100	25	193
150 X 100	35	220
150 X 125	25	229
200 X 150	45	296
250 X 200	45	346

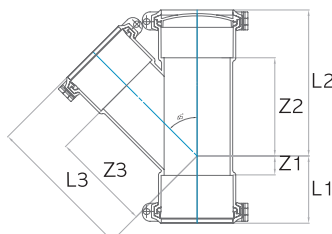


■ Plan to production / Unit: mm

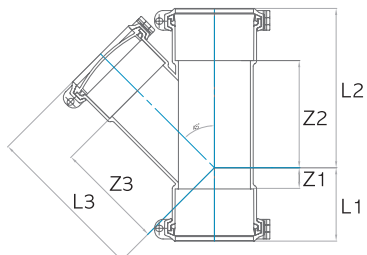
## 45Y



## CY-I type



## CY-II type

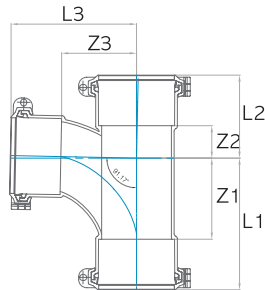


DN	Z1	Z2	Z3	L1	L2	L3
■ 50	18	123	95	63	168	140
75	25	151	130	89	215	194
100	28	178	148	103	253	223
125	38	192	195	131	285	288
150	44	220	225	154	330	335
200	53	278	290	193	418	430
250	70	350	350	230	510	510
75 X 50	5	124	115	69	188	160
100 X 50	-7	130	133	68	205	178
100 X 75	12	160	137	87	235	201
125 X 50	-15	127	155	78	220	200
125 X 75	-	155	160	93	248	224
125 X 100	18	198	180	111	273	254
150 X 50	-30	138	170	80	248	215
150 X 75	-10	165	180	100	275	244
150 X 100	5	180	195	115	290	270
150 X 125	27	203	210	137	313	303
200 X 100	-15	210	230	125	350	304
200 X 125	-	230	245	140	370	338
200 X 150	18	250	260	158	390	370
250 X 100	-41	236	270	119	396	345
250 X 125	-26	260	280	134	420	373
250 X 150	-	275	295	160	435	405
250 X 200	35	310	320	195	470	460

\* Dimension of CY-I type, II type are the same with 45Y

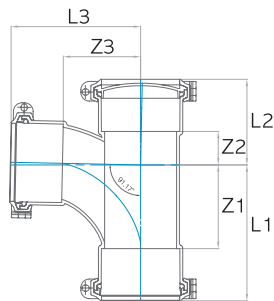
# EDR Fittings

## LT

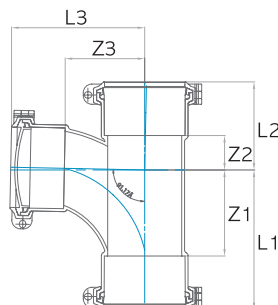


DN	Z1	Z2	Z3	L1	L2	L3
■ 50	71	26	66	116	71	111
75	90	42	85	154	106	149
100	122	53	112	197	128	187
125	150	60	140	243	153	233
150	175	70	170	285	180	280
200	192	98	190	325	238	330
250	225	120	220	385	280	380
75 X 50	55	31	75	119	95	120
100 X 50	54	32	80	129	107	125
100 X 75	90	40	100	165	115	164
125 X 50	54	33	100	147	126	145
125 X 75	84	41	120	177	134	184
125 X 100	116	51	135	209	144	210
150 X 50	50	37	110	160	147	155
150 X 75	77	46	130	187	156	195
150 X 100	104	54	145	214	164	220
150 X 125	132	66	148	242	176	241
200 X 100	102	51	180	235	191	255
200 X 125	123	64	180	256	204	273
200 X 150	143	77	180	276	217	290
250 X 100	94	58	200	254	218	275
250 X 125	112	71	200	272	231	293
250 X 150	130	84	200	290	244	310
250 X 200	177	104	210	337	264	350

## CLT-I type



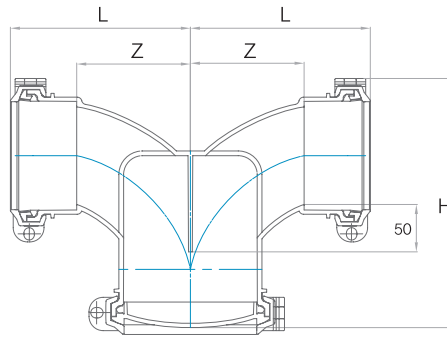
## CLT-II type



\* Dimension of CLT-I type, II type are the same with LT

■ Plan to production / Unit: mm

## U-Trap



DN	Z	L	H
75	120	184	241
100	120	195	279
125	145	238	322

# Transparent EDR System

## Product introduction

### • Transparent EDR

Transparent EDR is a system that meets the performance of the product that can visually check the sediment, blockage, and jam of the pipe.

### • A range of application

Application to areas for visual inspection of pipe blockages, debris, and sediment in buildings.

### • Cause of development

Transparent EDR was developed to check the public housing pipes for sediment, debris, and other blockages in advance.

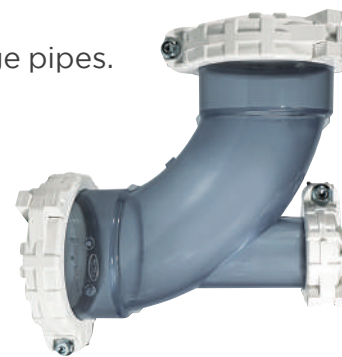
## Applications and Features

### • Applications

Use for inspection parts such as sewage and drainage pipes.

### • Features

1. Fulfill a physical properties of KS M 3401
2. Easy to maintain and economical
3. Possible to visually check the flow of water



## Properties

TEST	UNIT	KS (KS M 3401)	Transparent EDR
Tensile strength at yield point	MPa	45↑	47↑
Water pressure	MPa	no leaks or defects when held for 1 min at 0.35MPa	pass
Flattening	-	no rupture, cracks, pore	pass
Immersion	mg/cm <sup>2</sup>	within ±0.2	within ±0.2
Vicat softening temperature	°C	76↑	76↑
Pb	wt%	0.1↓	0.0

# OF 50 (OverFlow)

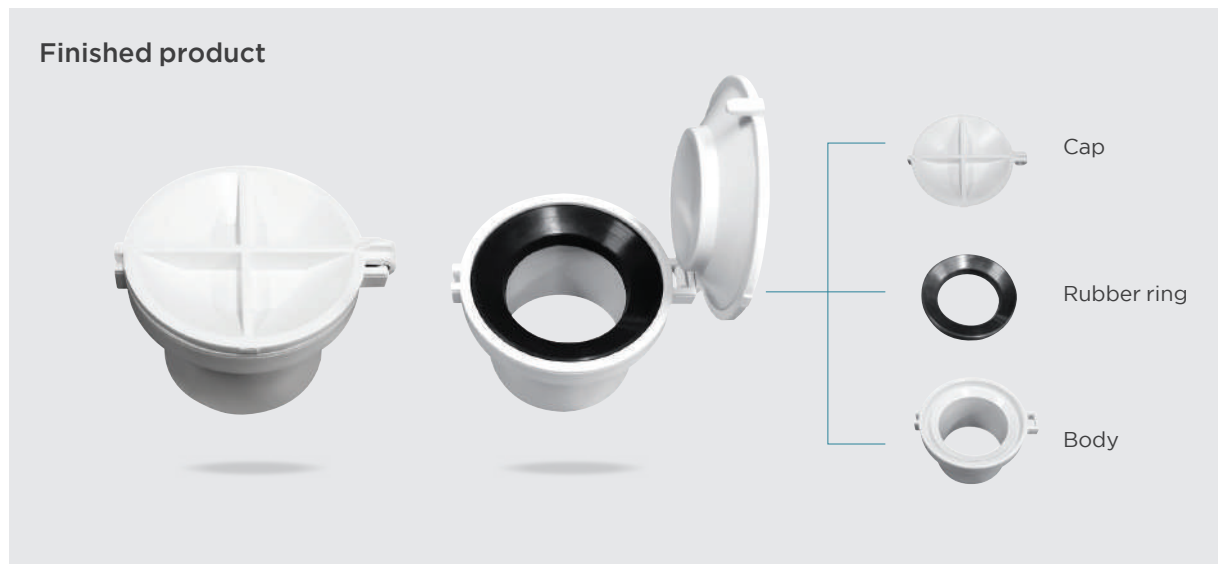
## Product introduction

OF 50 is developed to drain sewage and drainage at a particular area before water reaches the first floor when blocked by artificial or environmental factors at EDR pipes.

## Features

- Water will drain from the OF 50, If pipes on the basement floor of an apartment building is blocked.
- It is combined with EDR Y and constructed with the opening part facing the bottom.
- When the pipes are filled with, opening cap is opened and water is drained. The cap is automatically closed after drained. After closing, remove foreign substances from the inside and press the cap with your hands.
- The cap is normally closed, so prevent odors.

## Product configuration



# NC2

# 02



NC2 is a new concept product that uses special hard reinforced PVC including special sound insulation and flame retardant and achieve strong and convenient construction using patented BCF3.



### Features

- Excellent noise insulation and flame retardancy
- Faster and stronger pipe fitting with BCF3 fastening technology
- Excellent impact resistance compared to general PVC pipe fittings
- Excellent thermal insulation

### Applications

- Piping for water drain of a toilet, shower, and bathtub in buildings
- Indoor vertical piping
- Piping for ventilation

### Construction method



1 Cutting



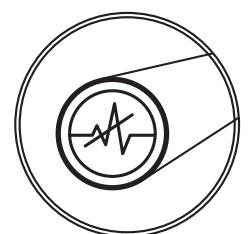
2 Assembling



3 Clamp tightening (an electric drill) and finishing

### Precautions

- Use of high concentrations of chemical pipes and hot and high pressure pipes is prohibited. (Maximum 40° ↓, using none pressure pipe)
- Spraying or painting chemicals or organic compounds (ex: acetone, thinner, creosote) and contacting with the fire can pose a risk the quality of the product.
- When using glue, be sure to read the precautions before using it.

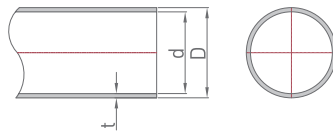


LOW - NOISE



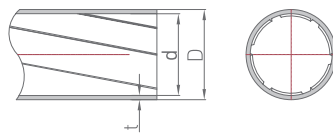
# NC2 pipes

## NC2 pipe



DN	Typ.(D)	Thickness (t)(min.)	Inner diameter(d)
35	42±0.2	2.8	36.4
40	48±0.2	3.4	41.2
50	60±0.2	3.7	52.6
75	89±0.3	4.0	81.0
100	114±0.4	4.2	105.6
125	140±0.5	5.0	130.0

## NC2 spiral pipe



DN	Typ.(D)	Thickness (t)(min.)	Inner diameter(d)
75	89±0.3	4.0	81.0
100	114±0.4	4.2	105.6

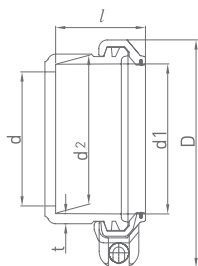
# NC2 Fittings

Unit: mm

## Insert part

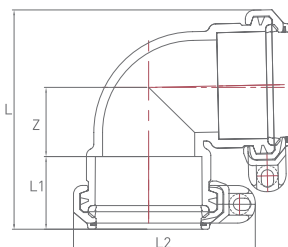
\* Tolerance :  $\pm 2$ mm

\*  $\ell$  varies slightly depending on the item



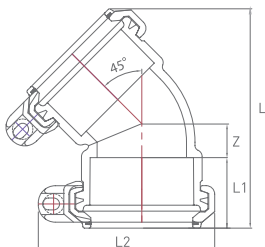
DN	d (reference)	d1	d2 (min.)	D (reference)	t (min.)	$\ell$
35	36.4	43.2 $\pm$ 0.5	42.0	81	3.5	32.5
40	41.0	49.2 $\pm$ 0.5	48.0	89	4.0	32.5
50	52.6	61.2 $\pm$ 0.6	60.0	104	4.5	38.5
75	80.6	90.2 $\pm$ 1.0	89.0	137	5.5	54
100	104.6	115.4 $\pm$ 1.0	114	166	6.0	64

## DL



DN	Z	L	L1	L2
35	33	102	36	81
40	36	106	36	89
50	40	125	42	104
75	55	170	54	137
100	70	211	64	166

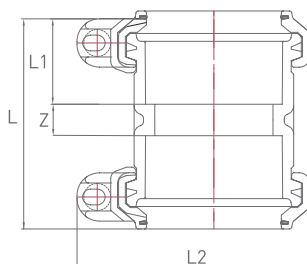
## 45L



DN	Z	L	L1	L2
35	17	108	36	81
40	18	112	36	89
50	20	129	42	104
75	28	175	54	137
100	35	213	64	166

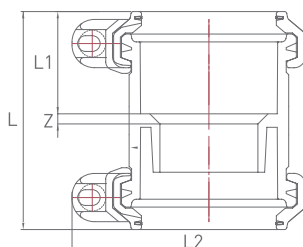
# NC2 Fittings

## DS



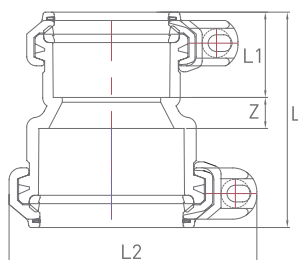
DN	Z	L	L1	L2
50	14	97	42	104
75	15	123	54	137
100	17	145	64	166

## DS (Vertical pipe socket)



DN	Z	L	L1	L2
50	5	97	46	104
75	5	123	58	137
100	3	145	69	166

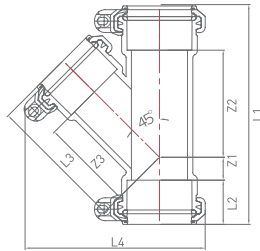
## IN



DN	Z	L	L1	L2
50X35	13	90	36	104
50X40	13	90	36	104
75X50	18	114	42	137
100X50	25	131	42	166
100X75	20	138	54	166

Unit: mm

### 45Y



DN	Z1	Z2	Z3	L1	L2	L3	L4
----	----	----	----	----	----	----	----

50	22	101	87	205	42	128	170
----	----	-----	----	-----	----	-----	-----

75	27	136	128	271	54	182	235
----	----	-----	-----	-----	----	-----	-----

100	36	163	162	329	64	226	292
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50X35	11	85	79	180	42	115	151
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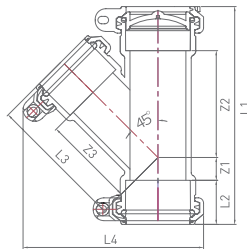
50X40	15	92	82	190	42	118	154
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75X50	12	110	111	230	54	153	204
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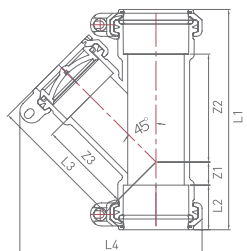
100X50	1	120	129	246	64	170	231
--------	---	-----	-----	-----	----	-----	-----

100X75	21	145	145	291	64	199	262
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### 45CY-Itype

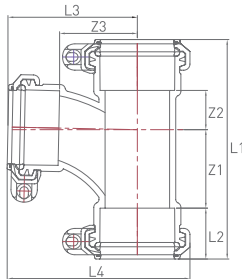


### 45CY-IItype



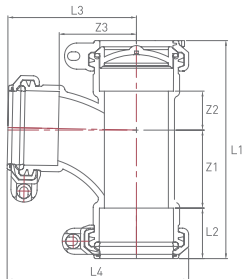
# NC2 Fittings

## LT



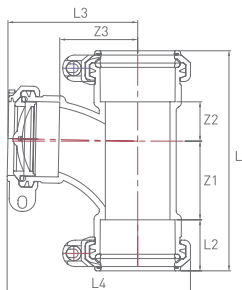
DN	Z1	Z2	Z3	L1	L2	L3	L4
50	64	32	63	179	42	106	149
75	85	41	84	234	54	139	199
100	112	53	110	294	64	176	252
50X35	40	24	51	147	42	88	131

## CLT-Itype



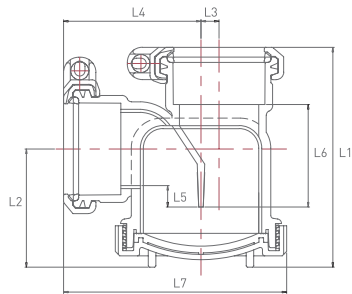
50X40	45	27	55	155	42	91	134
75X50	59	27	79	194	54	122	182
100X50	63	30	94	222	64	137	212
100X75	77	47	94	253	64	149	224

## CLT-IItype



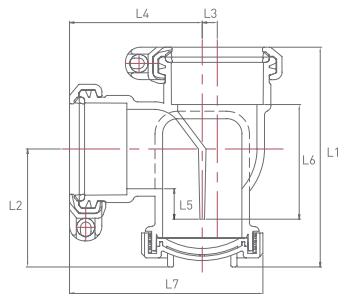
Unit: mm

## P-Trap A



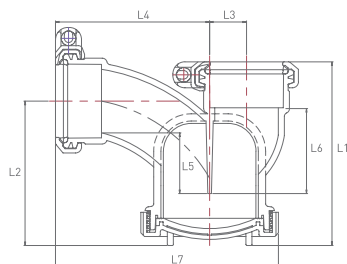
DN	L1	L2	L3	L4	L5	L6	L7
40X75	133	66	12	84	14.4	60	141
50X75	146	79	12	92	14.2	68	149

## P-Trap B



DN	L1	L2	L3	L4	L5	L6	L7
40X50	127	73	10	78	20.4	63	118
50X50	146	79	10	88	20.2	76	129

## P-Trap C



DN	L1	L2	L3	L4	L5	L6	L7
50X75	152	120	31	128	50.2	71	185

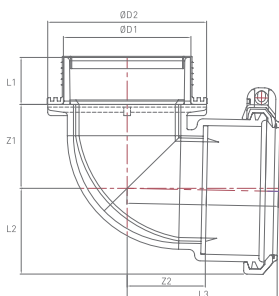
\* Meet standard construction specification  
reference depth



# NC2 toilet bowl elbow

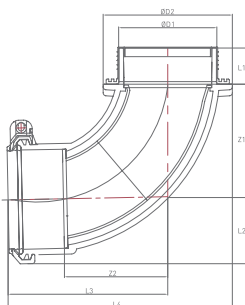
- Directly construct sleeve method

## S-1



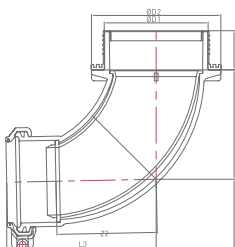
DN	Z1	Z2	L1	L2	L3	ØD1	ØD2
100	75	71	42	77	135	114	142

## S-3



DN	Z1	Z2	L1	L2	L3	L4	ØD1	ØD2
100	131	121	42	77	185	260	114	150

## S-4



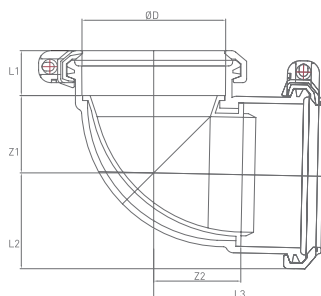
DN	Z1	Z2	L1	L2	L3	ØD1	ØD2
100X75	120	110	43	80	164	114	142

# NC2 toilet bowl elbow

Unit: mm

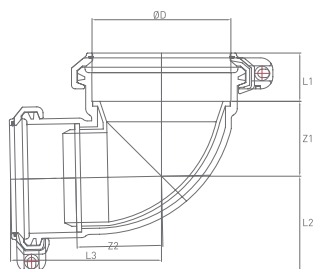
- Construct short-pipe method

## P-2P



DN	Z1	Z2	L1	L2	L3	ØD
100	62	71	36	77	135	115

## P-4



DN	Z1	Z2	L1	L2	L3	ØD
100X75	62	71	40	79	125	115

# NC2+

# 03



50% less  
noise



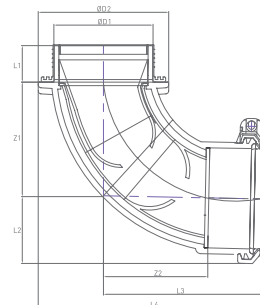
50%  
reduction in  
construction  
period



300%  
increase in  
joint strength



NC2+ is a new concept ultra-low noise toilet elbow that dramatically reduces noise by controlling fluid flow and suppressing noise generation by applying a unique patent, Variable Elastic Nozzle (EVN), to minimize drainage noise.



DN	Z1	Z2	L1	L2	L3	L4	ØD1	ØD2
100	131	121	42	77	185	260	114	150

**3rd  
Generation  
EVN**

The NC2 toilet bowl elbow adopts its own patented elastic variable nozzle (EVN) technology to minimize the drainage noise and control the flow of fluid.



**Excellent noise reduction**  
(low noise more than 4dB compared to NC)

\*KTR test result (toilet elbow) 2 times lower noise in human sensing compared to NC

**Test  
performance**

Result of NC2+ SS-5 according to the test KS L 1551 : 2014. Select and test the sample by analyzing the main causes of toilet elbow blockage in Korea and abroad.

- Sample of the test: fecal substitute B, C, kleenex, 44mm diameter sphere - Additional
- samples : sanitary pad, wet wipe, dental floss

sample	quantities	residue at toilet	residue at elbow(SS-5)	note
fecal substitute B	100	0	0	
fecal substitute C	2,500	13	0	standard of pass : 125
kleenex	8	0	0	
sanitary pad	1	100%	0	blockage in toilet put the pad into toilet elbow directly
wet wipe	4	0	0	
dental floss	30 (300mm)	0	0	
44mm diameter sphere	1	0	0	

**Excellent drainability**

**Maintain drainability under worst conditions**

# NC 04



NC consist of a pipe with a special sound insulation layer containing a large amount of sound insulation materials, and a fitting that inside is a hard PVC, outside is soft PVC. By URF tightening method, product has excellent noise-control performance and convenient construction.



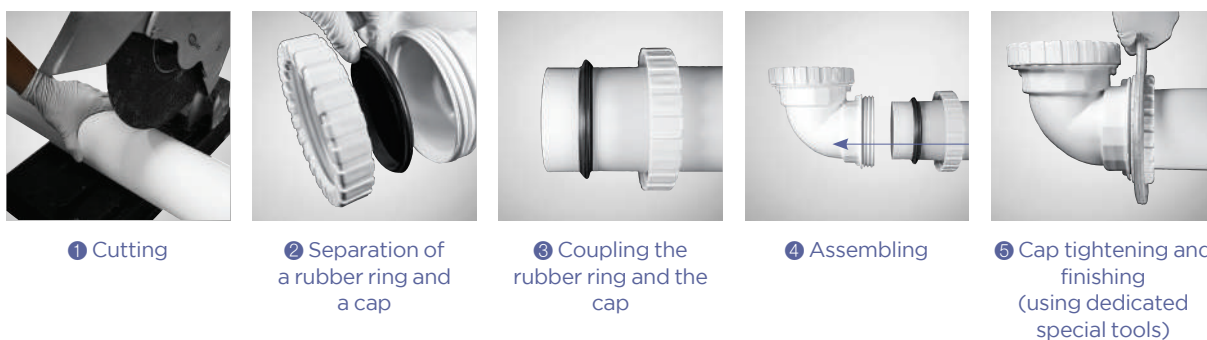
## Features

- Excellent noise performance due to double structure.
- Excellent impact resistance compared to conventional PVC pipes.
- Excellent thermal insulation.

## Applications

- Water drain and ventilation of buildings.
  - Indoor vertical piping.
- \* NC can also be used with DTS.

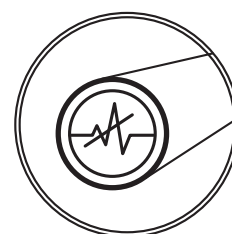
## Construction method



\* When cutting, cut at right angles.

## Precautions

- Use of high concentrations of chemical pipes and hot and high pressure pipes is prohibited. (Maximum 40° ↓, using none pressure pipe)
- Spraying or painting chemicals or organic compounds (ex: acetone, thinner, creosote) and contacting with the fire can pose a risk the quality of the product.
- When using glue, be sure to read the precautions before using it.
- Heavy load and impact on the pipe when handled as a triple layer pipe may result in deformation, breakage, or flexion on the surface.

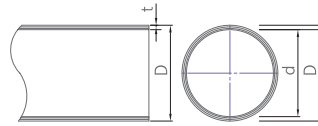


LOW - NOISE



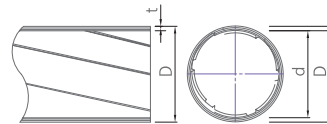
# NC Pipes

## NC pipe



DN	Outer diameter		Thickness (t) (min.)	Inner diameter (d) (max.)
	Typ. D	Tolerance D		
35	42.0	±0.2	2.8	36.6
40	48.0	±0.2	3.4	41.4
50	60.0	±0.2	3.7	52.8
75	89.0	±0.3	4.2	80.9
100	114.0	±0.4	4.7	105.0
125	140.0	±0.5	5.4	129.7

## NC spiral pipe



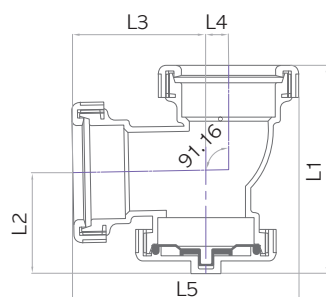
DN	Outer diameter		Thickness (t) (min.)	Inner diameter (d) (max.)
	Typ. D	Tolerance D		
75	89.0	±0.3	4.2	80.9
100	114.0	±0.4	4.7	105.0

# NC Fittings

Unit : mm

\* Tolerance of 'Z' : ±2mm / L : standard size

## Exposure-type elbow for Laundry room

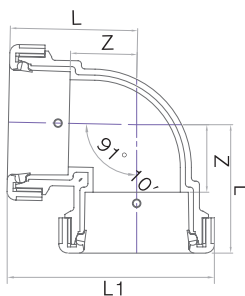


### Product advantages

1. It is affected by other work after construction
2. It doesn't freeze even in cold weather

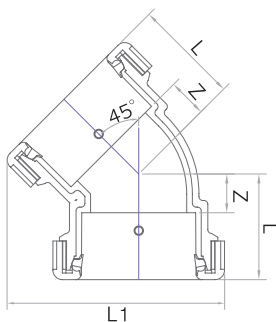
DN	L1	L2	L3	L4	L5
50	126.4	57.2	85.9	14.6	146

## 90 Elbow (DL)



DN	Z	L	L1
35	29	57	92
40	34	66.5	105
50	39.5	75	121
75	56	106.5	171
100	70	132	210

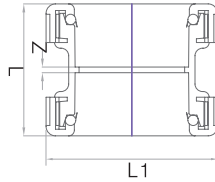
## 45 Elbow (45L)



DN	Z	L	L1
35	24	52	94
40	26	59	105
50	21	56	115
75	38	89	168
100	35	97	197

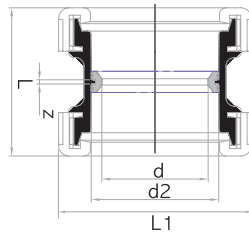
# NC Fittings

## Socket (DS)



DN	Z	L	L1
50	3	70	91
75	3.5	100	126
100	4	123	153
125	5	138	179

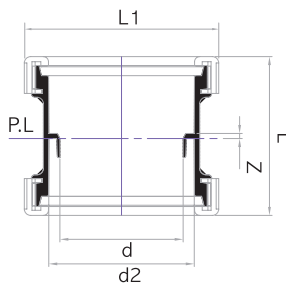
## DS50 (Vertical pipe socket)



DN	Z	L	d2	d	L1
50	2	70	60.2	50	91
100	4	111	114.5	97	153

\* L : standard size \* Can use NC, NC2, VG1, VG2 pipe

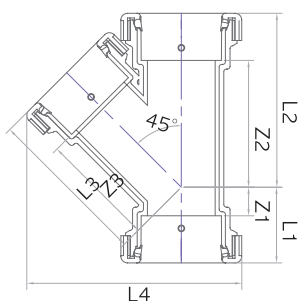
## DS100 (Vertical pipe socket)



Unit : mm

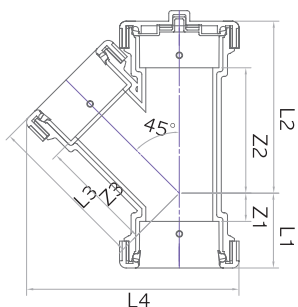
\* Tolerance of 'Z' :  $\pm 2\text{mm}$  / L : standard size  
/ Dimension of CY-I type, II type are the same with 45Y

## 45Y

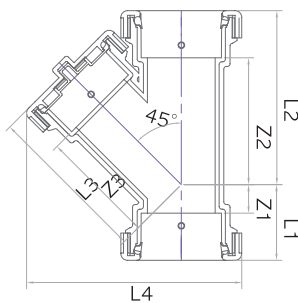


DN	Z1	Z2	Z3	L1	L2	L3	L4
50 X 35	16	84	89	51	119	117	150
50 X 40	19	90	92	54	125	125	159
50	22	96	87	57	131	122	164
75 X 50	17	115	126	68	166	157	204
75	37	138	145	88	189	196	244
100 X 50	7	130	144	69	192	180	234
100 X 75	26	150	160	88	212	211	268
100	36	158	162	98	220	224	288

## CY-I type



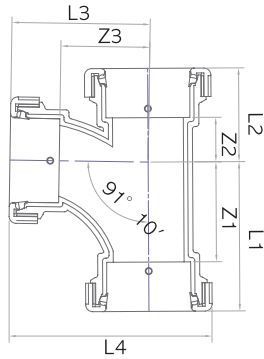
## CY-II type



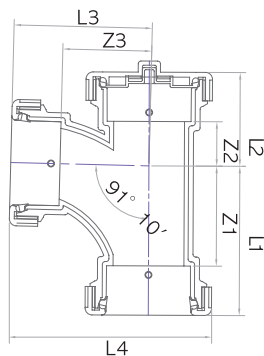
# NC Fittings

\* Tolerance of 'Z':  $\pm 2\text{mm}$  / L: standard size  
/ Dimension of CLT-I type, II type are the same with LT

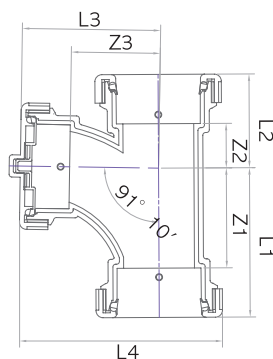
## LT



## CLT-I type



## CLT-II type

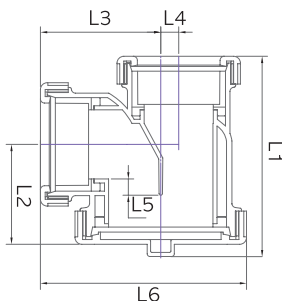


DN	Z1	Z2	Z3	L1	L2	L3	L4
40	64	31	64	97	64	97	135
50 X 35	40	24	52	75	59	80	126
50 X 40	45	27	55	80	62	87	134
50	72	32	64	107	67	99	146
75 X 40	59	33	85	110	84	118	180
75 X 50	59	35	80	110	86	116	180
75	85	41	85	136	91.5	135.5	200
100 X 50	63	30	95	125	92	130.5	208
100 X 75	77	47	95	139	109	145.5	223
100	112	53	112	174	115	174	252



Unit : mm

## P-Trap A



P-Trap A	L1	L2	L3	L4	L5	L6
----------	----	----	----	----	----	----

40X75	137	69	85	10	12	148
-------	-----	----	----	----	----	-----

50X75	148	74	89	13	12	152
-------	-----	----	----	----	----	-----

P-Trap B	L1	L2	L3	L4	L5	L6
----------	----	----	----	----	----	----

40X50	140	73	86	8	12	132
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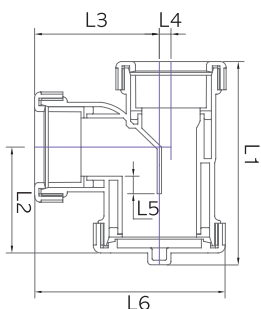
50X50	158	85	92	10	10	136
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P-Trap C	L1	L2	L3	L4	L5	L6
----------	----	----	----	----	----	----

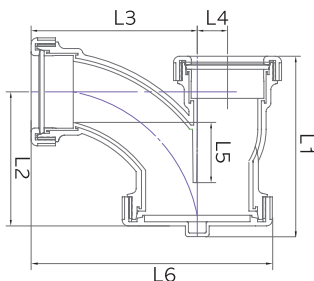
50X75	152	113	140	25.5	50	203
-------	-----	-----	-----	------	----	-----

\* Meet standard construction specification  
reference depth

## P-Trap B



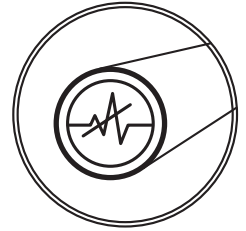
## P-Trap C



NC P-Trap type comparison.

	A type 50X50X75	B type 50X50X50	C type 50X50X75
H (height)	147.7	158	167.5
Depth of water in P-trap	12	20	50.7
Amount of water in P-trap	190ml	100ml	450ml

# NC toilet bowl elbow



**LOW - NOISE**

## Features

- low noise : made of triple-layer structure (including 1 air layers), effectively preventing drain noise from being transmitted externally
- impact mitigation : can minimize impact noises from drain as it uses soft pvc at the point where the main impact noise occurs
- preventing dew condensation : can prevent dew condensation on the surface of pipes due to a high thermal resistance coefficient as an air layer inside the pipe is formed

## Applications

Bathroom plumbing for high-rise building, apartments, and general house

## Construction method

1. Cut pipe at right angles to the axis, clean the cut area, and mark the insertion length on pipe.(See table at bottom for joint insertion length)
2. After Placing the cap of toilet elbow toward the pipe, apply adhesive to the pipe and connect it to the toilet elbow and assemble it on the sleeve.  
(Exclude a directly construct sleeve method \*toilet elbow S-type)
3. Open the cap of the toilet elbow and assemble the cap and rubber ring into the pipe in order.
4. Push the pipe in close contact with the end of the insertion length and tighten the rubber ring and cap.
5. When moving and installing the tightened pipe, secure the hanger and tighten the cap once more with the tool.

\* Tolerance is  $\pm 2\text{mm}$

## Insertion length

	Direction to cap	Direction to Sleeve
S-1	61	50
S-2	61	44.5
S-3	64.5	38
S-4	60.5	38
P-1	62.5	50
P-3	61	31
P-4	56	42.5
P-2P	56	36

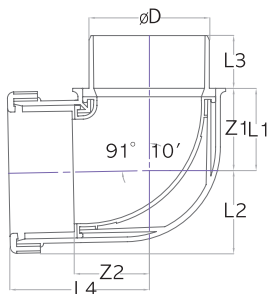
# NC toilet bowl elbow

Directly construct sleeve method

Unit : mm

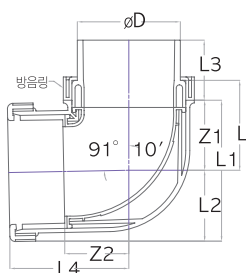
\* Tolerance of 'Z' : ±2mm / L : standard size  
/ D : reference size / t2 : min. size

## Triple-layer Elbow(S-1)



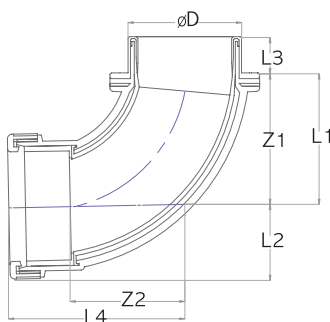
DN	Z1	Z2	L1	L2	L3	L4	ØD	t2
100	77.5	72	83	79	50	133	114	2.5

## Triple-layer Elbow(S-2)



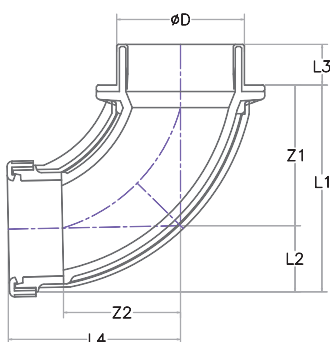
DN	Z1	Z2	L	L1	L2	L3	L4	ØD	t2
100	77.5	72	99.5	156	79	66.5	133	114	2.5

## Triple-layer Elbow(S-3)



DN	Z1	Z2	L1	L2	L3	L4	ØD	t2
100	136.5	119	137	79.5	38	185	119	1.8

## Triple-layer Elbow(S-4)

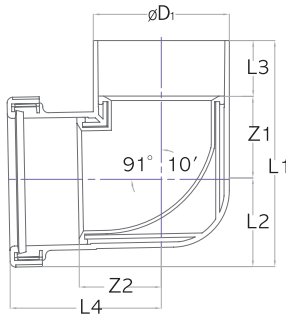


DN	Z1	Z2	L1	L2	L3	L4	ØD
100×75	130.9	109	131	61.8	38	160	119

# NC toilet bowl elbow

Construct short-pipe method

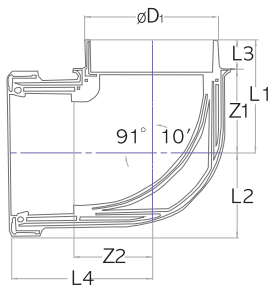
## Triple-layer Elbow(P-1)



DN	Z1	Z2	L1	L2	L3	L4	$\varnothing D_1$	$\varnothing D_2$	t2
----	----	----	----	----	----	----	-------------------	-------------------	----

100	75	75	125	79	50	139	123	113.5	3.0
-----	----	----	-----	----	----	-----	-----	-------	-----

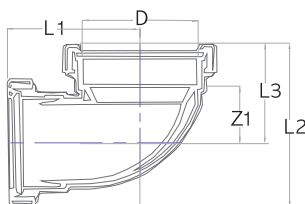
## Triple-layer Elbow(P-3)



DN	Z1	Z2	L1	L2	L3	L4	$\varnothing D_1$	$\varnothing D_2$	t2
----	----	----	----	----	----	----	-------------------	-------------------	----

100	77.5	72	105	79	27	135	123	113.5	2.5
-----	------	----	-----	----	----	-----	-----	-------	-----

## Triple-layer Elbow(P-4)



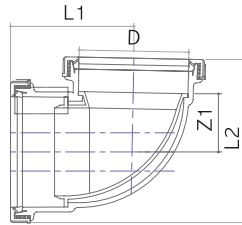
DN	Z1	L1	L2	L3	D
----	----	----	----	----	---

100X75	54	131	162	96	115
--------	----	-----	-----	----	-----

Unit : mm

\* Tolerance of 'Z' :  $\pm 2$ mm / L : standard size  
/ D : reference size / t2 : min. size

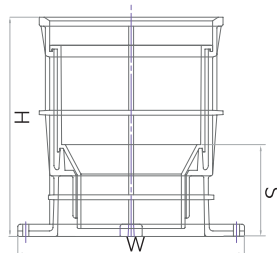
## Triple-layer Elbow(P-2P)



DN	Z1	L1	L2	D
100X100	61	129	170	115

## Double-layer sleeve

Cross section



NO	DN	H	W	S
01	100	180, 210	165	49



# URF

# 05



URF is a product developed to improve the inconvenience of existing DTS, and is excellent for water tightness, repair convenience and temperature change by combining cap and rubber ring structure.

### Features

- Non-toxic, odorless and harmless to human body
- Excellent corrosion resistance, chemical resistance and oil resistance, thereby ensuring stable use.
- Low friction with smooth inner surface
- Easy to process and construct
- Excellent self-extinguishing property and excellent flame retardancy
- Excellent electrical insulation
- Long life-time

### Applications

- Water drain, general fluid transportation, and other-purpose piping

### Construction method



① Cutting

② Separation of a rubber ring and a cap

③ Coupling the rubber ring and the cap

④ Assembling

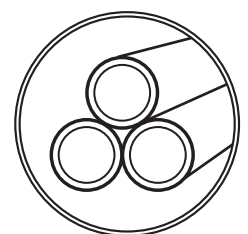
⑤ Cap tightening and finishing (using dedicated special tools)

DN	35	40	50	75	100	125
Insertions length (URF)	26.5	31.5	33.5	48	59.5	66

\* The tolerance of the tightened cap is  $\pm 2\text{mm}$

### Precautions

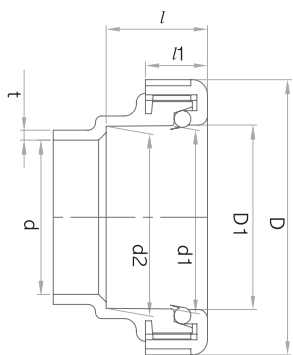
- Use of high concentrations of chemical pipes and hot and high pressure pipes is prohibited. (Maximum 40° ↓, using none pressure pipe)
- Spraying or painting chemicals or organic compounds (ex: acetone, thinner, creosote) and contacting with the fire can pose a risk the quality of the product.



URF

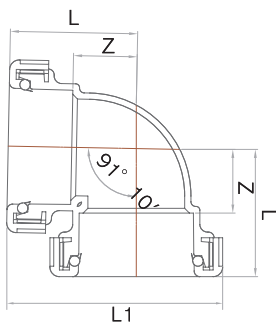
# URF Fittings

## Insert part



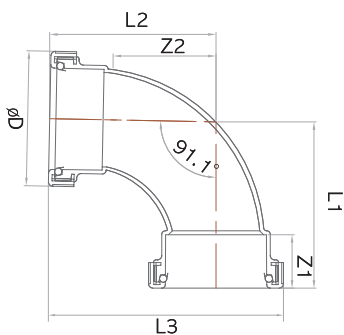
DN	d (max)	d1	d2	tolerance of d1, d2	D	D1 (Min.)	ℓ (Min.)	ℓ1	t
35	35	43	42.5	±0.25	68	43	26.5	18	2.7
40	40.5	49	48.5	±0.25	76	49	31.5	19.5	2.7
50	51	61	60.5	±0.25	90	61	33.5	20	3
75	77	90	89.5	±0.30	125	90	48	24	3.6
100	99	115	114.5	±0.30	153	115	60.5	28	4
125	125	141	140.5	±0.30	181	141	66.5	31	5

## 90 Elbow - Short (DL)



DN	Z	L	L1
35	28	54	88
40	28	60	98
50	34	68	114
75	46	94	157
100	58	118	196
125	73	139	231

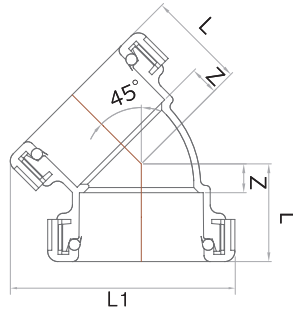
## 90 Elbow - Long (LL)



DN	Z1	Z2	L1	L2	L3	ØD
100	60.5	128.5	188.5	188.6	266	153

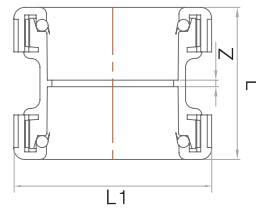
Unit : mm

### 45 Elbow (45L)



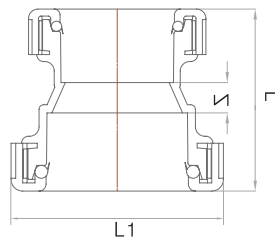
DN	Z	L	L1
35	11	37	82
40	12	44	94
50	14	48	109
75	22	70	155
100	26	86	189
125	46	112	230

### Socket



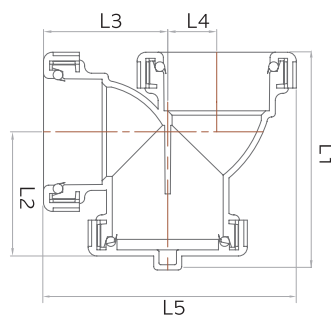
DN	Z	L	L1
50	3	70	91
75	3.5	100	126
100	4	123	153
125	5	138	179

### Reducer (IN)



DN	Z	L	L1
50 X 35	13	73	91
50 X 40	13	78	91
75 X 50	18	100	126
100 X 50	23	116	153
100 X 75	20	128	153
125 X 100	30	156	176

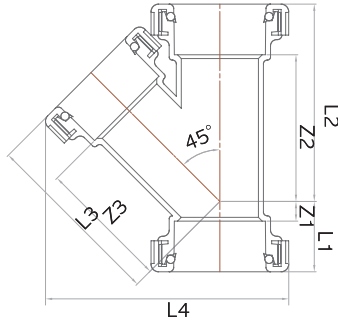
### P-Trap



DN	L1	L2	L3	L4	L5
40	125	61	61	20	119
50	125	71	71	28	144
75	181	108	108	40	206

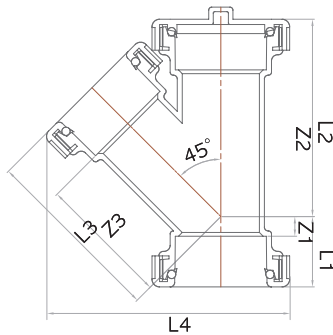
# URF Fittings

## 45Y

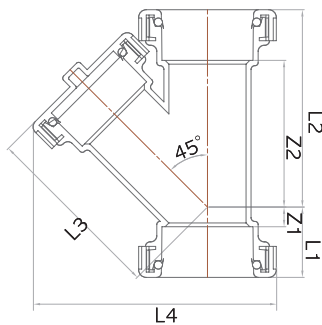


DN	Z1	Z2	Z3	L1	L2	L3	L4
40	12	80	85	43	112	117	146
50 X 35	3	82	76	36	116	103	140
50 X 40	6	85	81	39	119	113	150
50	13	96	87	46	130	121	161
75 X 40	6	90	103	42	138	135	183
75 X 50	2	110	114	50	158	148	198
75	22	132	126	70	180	174	228
100 X 50	13	114	129	73	173	162	221
100 X 75	12	146	149	72	206	197	258
100	25	157	151	85	217	211	274
125 X 100	17	162	178	83	228	238	310

## CY-I type



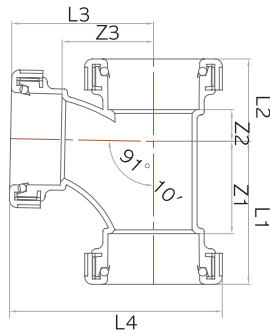
## CY-II type



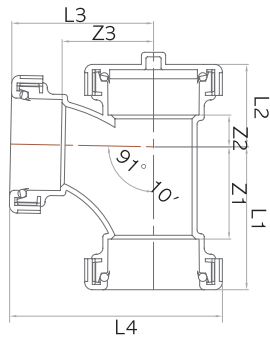
\* Dimension of CY- I type, II type are the same with 45Y

Unit : mm

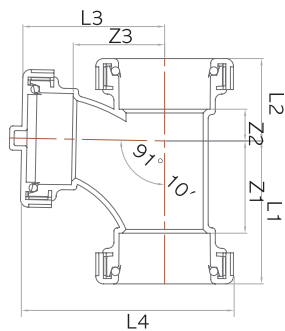
## LT



## CLT-I type



## CLT-II type

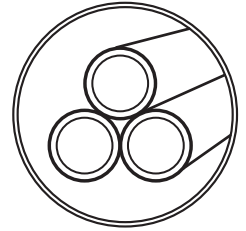


DN	Z1	Z2	Z3	L1	L2	L3	L4
40	47	21	49	78	53	81	119
50 X 35	38	18	50	71	51	76	122
50 X 40	50	18	56	83	52	87	132
50	62	21	62	95	55	95	141
75 X 40	63	23	79	111	71	110	173
75 X 50	66	26	79	114	74	113	176
75	102	40	96	150	88	144	208
100 X 50	62	27	88	121	87	122	199
100 X 75	98	33	108	158	93	156	233
100	123	38	123	183	98	183	261
125 X 100	121	42	140	187	108	200	291
125	135	58	135	201	124	201	293

\* Dimension of CLT- I type,  
II type are the same with LT



# Sextia



URF

## Features

Sextia(URF/S) has a combination structure of cap and rubber ring for perfect water tightness, easy to maintenance work, and flexible absorption due to temperature changes. It is mainly constructed with spiral pipes of standing pipes, so that the drainage of the upper floor rotates spiral pipes and falls smoothly without collision with each floor's EDR pipes drainage.

## Applications

Water drain, general fluid transportation, and other-purpose piping

## Construction method

1. Cut the spiral pipes at right angles, clean the cut area, and mark the insertion length on the pipe. (See table at bottom for joint insertion length.)
2. Open the cap and insert the cap and rubber ring into the pipe in order.
3. Push the pipe in close contact with the end of the insertion length and tighten the rubber ring and cap.
4. Tighten the cap with a specified tool. Do not over tighten.
5. When moving and installing the assembled pipe, secure the hanger and tighten the cap once more with the tool.

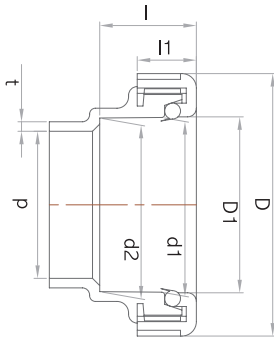
\* When constructing a spiral pipe with URF/S, it is necessary to remove spiral of insert part that join bottom of URF/S, please notify Durychemical when ordering.

## Insertion length

	50	75	100
URF/S	37	62	74

Unit : mm

## Insert part



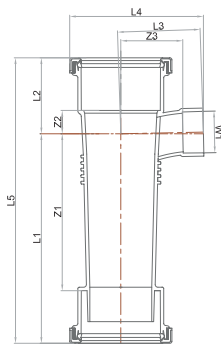
DN	d (min)	d1	d2	tolerance of d1, d2	D	D1 (min)	l (min)	l1
50	54	61	61	±0.25	90	61	37	20
75	84	90	89	±0.30	125	90	62	24
100	108	115	114	±0.30	153	115	74	28

\* Material of rubber ring: type1 unit1 of KS M6613

\* Tolerance of 'l, D' : ±2mm

\* Above spec. can be changed without notice improvement of performance.

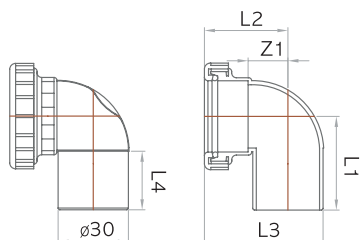
## S-NLT



DN	Z1	Z2	Z3	L1	L2
100 X 50	228	34	90	304	110
DN	L3	L4	L5	W1	
100 X 50	120	194	145	60	

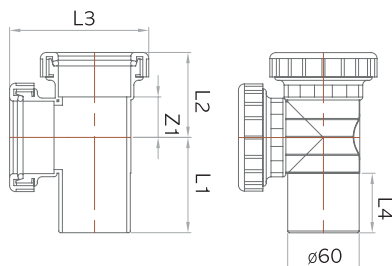
# Sextia Fittings

## S-DL



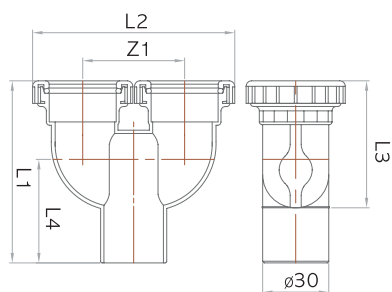
DN	Z1	L1	L2	L3	L4
50	34	100	72	102	70

## S-DT



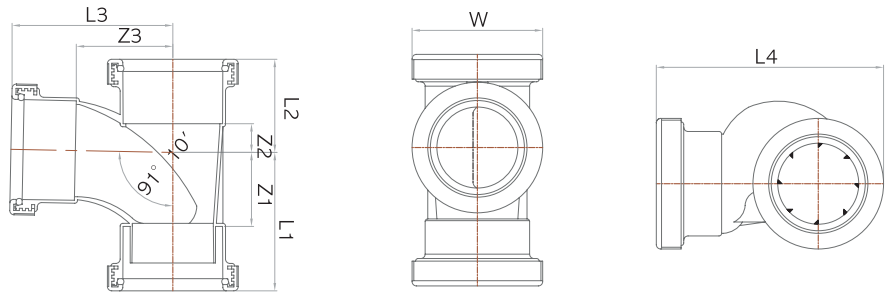
DN	Z1	L1	L2	L3	L4
50	34	100	72	117	69

## S-Y



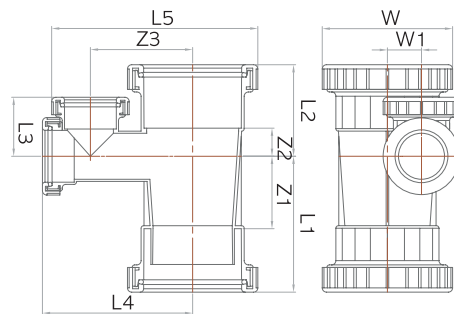
DN	Z1	L1	L2	L3	L4
50	92.5	185	184	116	115

## S-LT



DN	Z1	Z2	Z3	L1	L2	L3	L4	W
100 X 100	85.0	33.0	112.0	159.0	107.0	186.0	262.5	153.0
100 X 75	85.0	32.0	99.0	153.0	100.0	159.0	226.0	153.0
100 X 50	85.0	33.0	108.0	159.0	107.0	145.0	221.5	153.0
75 X 50	76.0	32.0	76.0	159.0	95.0	113.0	175.5	125.0

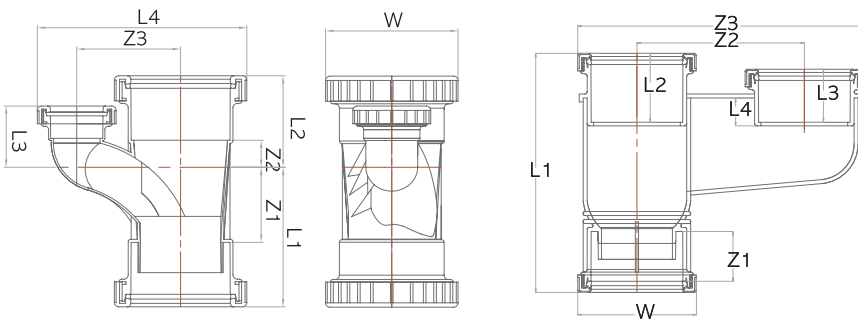
## S-T / S-CT



DN	Z1	Z2	Z3	L1	L2	L3	L4	L5	W	W1
100 X 50 X 50	85	33	120	160	108	70	177	242	153	40
75 X 50 X 50	76	32	110	139	95	70	166	218	125	28

# Sextia Fittings

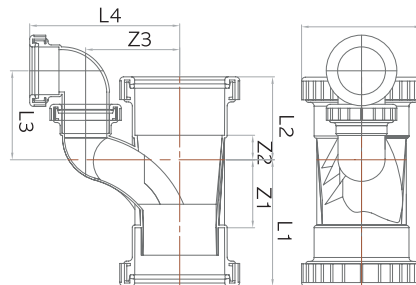
## S-NCT



DN	Z1	Z2	Z3	L1	L2
100 X 50	88	30	125	162.5	104.5
100X75	62	210	344	300	86.5
100X100	62	210	359	300	86.5

DN	L3	L4	W
100 X 50	89	247	153
100X75	65.5	35	149
100 X 100	66.5	35	149

## S-NCTL

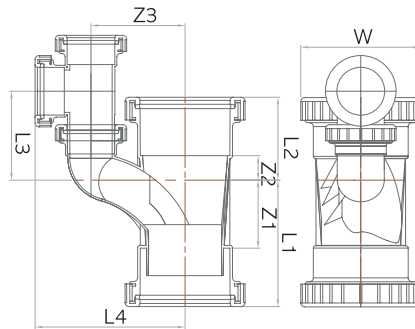


DN	Z1	Z2	Z3	L1
100 X 50 X 50	88	30	120	162.5

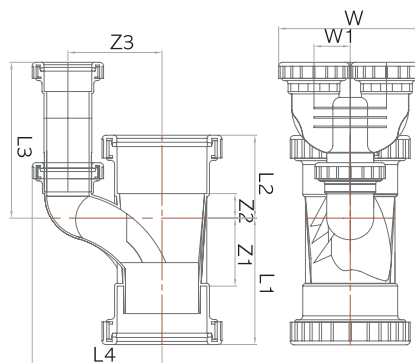
DN	L2	L3	L4	W1
100 X 50 X 50	104.5	133	191	153

## S-NCTT



DN	Z1	Z2	Z3	L1	L2	L3	L4	W
100 X 50 X 50	88	30	120	162.5	104.5	133	191	153

## S-NCTY



DN	Z1	Z2	Z3	L1	L2	L3	L4	W1	W
100 X 50 X 50	88	30	120	162.5	104.5	218	165.5	46	183.5



# Water-supply / General

# 06



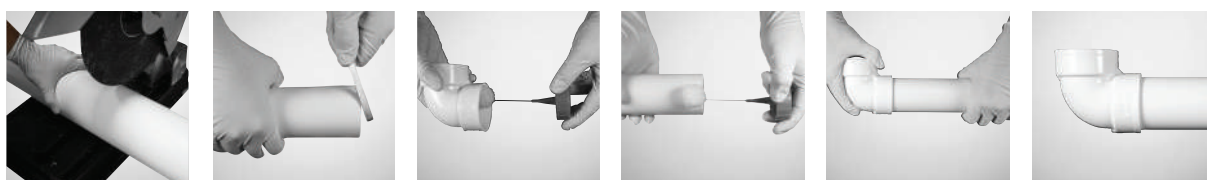
## Features

- Non-toxic, odorless and harmless to human body
- Excellent corrosion resistance, chemical resistance and oil resistance, thereby ensuring stable use.
- Low friction with smooth inner surface
- Easy to process and construct
- Excellent self-extinguishing property and excellent flame retardancy
- Excellent electrical insulation
- Long life-time

## Applications

Water drain, general fluid transportation, and other-purpose piping

## Construction method



① Cutting

② Chamfering

③ Adhesive application (fittings)

④ Adhesive application (pipes)

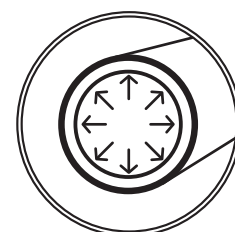
⑤ Assembling >> Adhesive curing

⑥ Completion

## Precautions

- Use of high concentrations of chemical pipes and hot and high pressure pipes is prohibited. (Maximum 40° ↓, using none pressure pipe)
- Spraying or painting chemicals or organic compounds (ex: acetone, thinner, creosote) and contacting with the fire can pose a risk the quality of the product.
- When using glue, be sure to read the precautions before using it.

\* Only for drainage pipe with cold insertion adhesion and rubber ring type.



**WATER  
SUPPLY**

# Water-supply / General Pipe

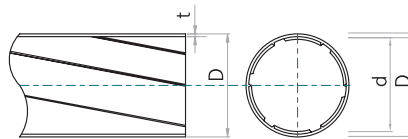
## Water-supply pipe (VP)



DN	Outer diameter (OD)			Thickness (t)	
	Typ.	Tolerance	Tolerance (Avg. OD)	Min.	Tolerance
16	22	±0.20	±0.20	3.0	±0.30
20	26	±0.25	±0.20	3.0	±0.30
25	32	±0.30	±0.20	3.5	±0.30
30	38	±0.35	±0.20	3.5	±0.30
35	42	±0.35	±0.20	3.7	±0.30
40	48	±0.40	±0.20	4.0	±0.30
50	60	±0.50	±0.20	4.5	±0.40
65	76	±0.50	±0.20	5.2	±0.40
75	89	±0.50	±0.20	5.9	±0.40
100	114	±0.65	±0.20	7.1	±0.50
125	140	±0.80	±0.30	8.3	±0.60
150	165	±1.00	±0.30	9.6	±0.60
200	216	±1.30	±0.70	11.1	±0.80
250	267	±1.60	±0.90	13.4	±0.80
300	318	±1.90	±1.00	16.1	±1.10

\* The tolerance of the standard length is +30mm, -10mm

## General pipe (VG1, VG2, Spiral)



### Spiral

DN	Outer diameter (D)		Inner diameter (D)	Thickness (t)
	Typ.	Reference	Reference	Typ.
75	89	83.5	83.5	2.7
100	114	107.8	107.8	3.1

### VG1

DN	Outer diameter (OD)			Thickness (t)		Inner diameter (reference)	Typ. length
	Typ.	Tolerance	Tolerance (Avg. OD)	Min.	Tolerance		
16	22	±0.20	±0.2	2.7	+0.6	16	4.000
20	26	±0.20	±0.2	2.7	+0.6	20	4.000
25	32	±0.20	±0.2	3.1	+0.8	25	4.000
30	38	±0.3	±0.2	3.1	+0.8	31	4.000
35	42	±0.3	±0.2	3.1	+0.8	35	4.000
40	48	±0.3	±0.2	3.6	+0.8	40	4.000
50	60	±0.4	±0.2	4.1	+0.8	51	4.000
65	76	±0.5	±0.3	4.1	+0.8	67	4.000
75	89	±0.5	±0.3	5.5	+0.8	77	4.000
100	114	±0.6	±0.4	6.6	+1.0	100	4.000
125	140	±0.8	±0.5	7.0	+1.0	125	4.000
150	165	±1.0	±0.5	8.9	+1.4	146	4.000
200	216	±1.3	±0.7	10.3	+1.4	194	4.000
250	267	±1.6	±0.9	12.7	+1.8	240	4.000
300	318	±1.9	±1.0	15.1	+2.2	286	4.000

### VG2

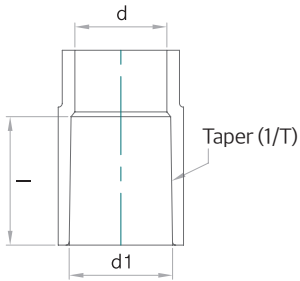
DN	Outer diameter (OD)		Thickness (t)		Inner diameter (reference)	Typ. length
	Typ	Tolerance (Avg. OD)	Min.	Tolerance		
35	42	±0.2	1.8	+0.4	38	4.000
40	48	±0.2	1.8	+0.4	44	4.000
50	60	±0.2	1.8	+0.4	56	4.000
65	76	±0.3	2.2	+0.6	71	4.000
75	89	±0.3	2.7	+0.6	83	4.000
100	114	±0.4	3.1	+0.8	107	4.000
125	140	±0.5	4.1	+0.8	131	4.000
150	165	±0.5	5.1	+0.8	154	4.000
200	216	±0.7	6.5	+1.0	202	4.000
250	267	±0.9	7.8	+1.2	250	4.000
300	318	±1.0	9.2	+1.4	298	4.000
350	355	±1.2	9.5	+1.4	335	4.000
400	400	±1.4	9.8	+1.4	379	4.000

\* Standard of length is 4m and tolerance is ±10mm \* Other DN can be produced after negotiation.

# Water-supply Fittings

\* ◆Non-KS(Korea Standard) product / Unit : mm

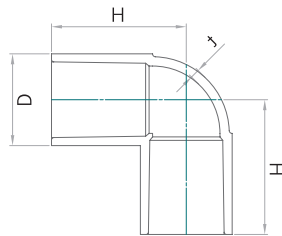
## Insert part



DN	d1	tolerance of d1	'1/T'	ℓ	d (min.)	DN	d1	tolerance of d1	'1/T'	ℓ	d (min.)
16	22.40	±0.20	1/34	30	16	50	60.80	±0.30	1/37	63	51
20	26.45	±0.20	1/34	35	20	65	76.80	±0.30	1/41	69	66
25	32.55	±0.25	1/34	40	25	75	89.80	±0.30	1/43	72	77
30	38.60	±0.25	1/34	44	31	100	115.00	±0.35	1/44	92	100
35	42.30	±0.25	1/37	44	35	125	141.20	±0.40	1/45	112	123
40	48.70	±0.30	1/37	55	40	150	166.50	±0.50	1/45	140	146
						200	218.30	±0.50	1/50	200	194

\* Tolerance of 'ℓ' : +4mm, -0.5mm

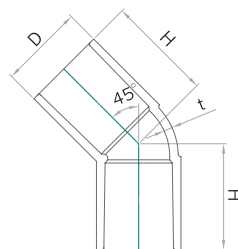
## 90 Elbow (DL)



DN	D	t	H
16	29	3.5	43
20	33	3.5	50
25	40	4.0	58
30	46	4.0	65
35	51	4.0	71
40	57	4.5	82
50	70	5.0	96
65	87	5.5	112
75	101	6.0	127
100	129	7.5	158
◆ 125	158	8.0	197
◆ 150	185	8.5	233
◆ 200	236	8.5	280

\* Tolerance of 'H' : +5mm, -1mm

## 45 Elbow (45L)

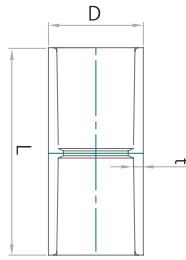


DN	D	t	H
50	70	5.0	80
◆ 75	101	6.0	96
◆ 100	128	7.5	121
◆ 150	184.5	8.5	185

\* Tolerance of 'H' : +5mm, -1mm

# Water-supply Fittings

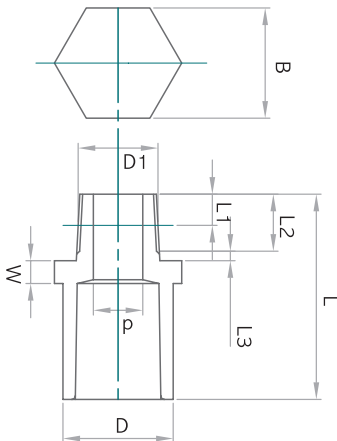
## Socket



DN	D	t	L
16	29	3.5	67
20	33	3.5	77
25	40	4.0	87
30	46	4.0	95
35	51	4.0	95
40	57	4.5	117
50	70	5.0	133
65	87	5.5	146
75	101	6.0	155
100	129	7.5	200
125	158	9.0	242
150	185	10.0	300
◆ 200	236	11.0	317

\* Tolerance of 'L': ±4mm

## Valve Socket (VS)

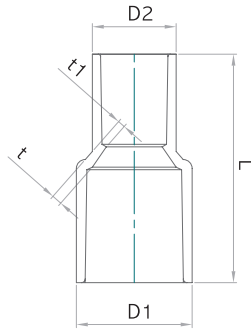


DN	D	Threaded part					W	L	B (min.)
		Outer diameter (D1)	No of thread 25.4mm	Thread length L1	Tolerance of L1	Effective thread length L1			
16 X 1/2"	29	20.955	14	8.2	3.6	15	6	54	29
20 X 3/4"	33	26.441	14	9.5	3.6	17	8	64	33
25 X 1"	40	33.249	11	10.4	4.6	19	8	71	40
30 X 1 1/4"	46	41.910	11	12.7	4.6	22	10	80	46
◆ 35 X 1 1/4"	51	41.910	11	12.7	4.6	22	10	81	52
40 X 1 1/2"	57	47.803	11	12.7	4.6	22	10	92	57
50 X 2"	70	59.614	11	15.9	4.6	26	12	106	70
◆ 65 X 2 1/2"	87	75.500	11	15.9	4.6	30	13	117	86
75 X 3"	101	87.884	11	20.6	4.6	34	16	128	101
◆ 100 X 4"	129	113.030	11	25.4	5.0	40	18	157	128

\* Tolerance of 'L': +5mm, -2mm \* Thread is taper thread for KS B0222 pipe

\* ◆Non-KS(Korea Standard) product / Unit : mm

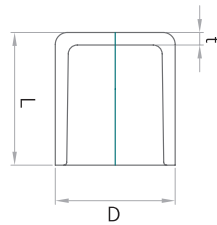
## Reducer (IN)



DN	D1	D2	t	t1	L
16 X 13	29	24	3.5	3.0	62
20 X 16	33	29	3.5	3.5	74
25 X 16	40	29	4.0	3.5	80
25 X 20	40	33	4.0	4.0	84
30 X 20	46	33	4.0	3.5	93
30 X 25	46	40	4.0	3.5	93
40 X 25	57	40	4.5	4.0	114
40 X 30	57	46	4.5	4.0	114
50 X 25	70	40	5.0	4.0	131
50 X 30	70	46	5.0	4.0	136
50 X 40	70	57	5.0	4.5	136
75 X 50	101	70	6.0	5.0	165
100 X 75	129	101	7.5	6.0	190

\* Tolerance of 'L' : ±4mm

## Cap



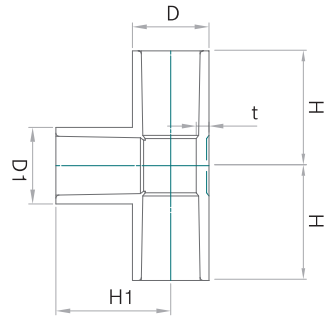
DN	D	t	L
16	29	3.5	33.5
20	33	3.5	38.5
25	40	4.0	44.0
30	46	4.0	48.0
◆ 35	51	4.5	54.5
40	57	4.5	59.5
50	70	5.0	68.0
75	101	6.0	105.0
100	129	7.5	138.0

\* Tolerance of 'L' : +5mm. -0mm



# Water-supply Fittings

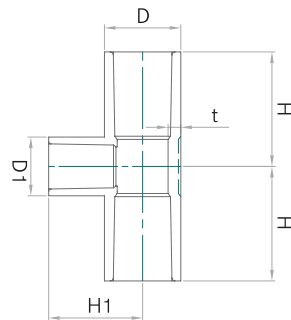
## Tee



DN	D	t	H	D1	H1
16	29	3.5	48	29	43
20	33	3.5	50	33	50
25	40	4.0	58	40	58
30	46	4.0	65	46	65
40	57	4.5	82	57	82
50	70	5.0	96	70	96
65	87	5.5	110	87	110
75	101	6.0	120	101	120
100	129	7.5	152	129	152
125	158	9.0	187	158	187
150	185	10.0	230	185	230

\* Tolerance of H, H1 : +5mm, -1mm

## Reducing Tee

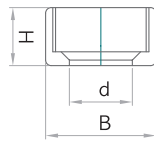
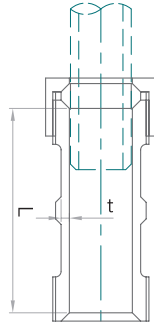


DN	D	t	H	D1	H1
20 X 16	33	3.5	48	29	45
25 X 16	40	4.0	53	29	48
25 X 20	40	4.0	55	33	53
30 X 16	46	4.0	57	29	51
30 X 20	46	4.0	59	33	56
30 X 25	46	4.0	62	40	61
40 X 16	57	4.5	68	29	57
40 X 20	57	4.5	70	33	62
40 X 25	57	4.5	73	40	67
40 X 30	57	4.5	76	46	71
50 X 16	70	5.0	76	29	63
50 X 20	70	5.0	78	33	68
50 X 25	70	5.0	81	40	73
50 X 30	70	5.0	84	46	77
50 X 40	70	5.0	90	57	88

\* Tolerance of H, H1 : +5mm, -1mm

\*◆Non-KS(Korea Standard) product / Unit : mm

## Simple joint

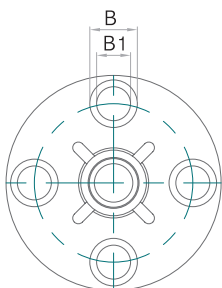
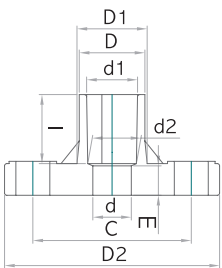


DN	L	t	H	d	B
16	74	3.5	21	22.8	40
20	78	3.5	21	26.8	43
25	88	4.0	21	33.0	50
30	97	4.0	25	39.0	58
40	106	4.5	26	49.2	70
50	116	5.0	26	61.5	84

\* Tolerance of 'L' : ±5mm

\* Material of rubber ring: type1 unit1 of KS M6613

## Flange

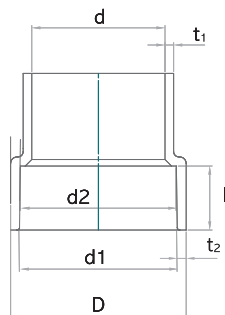


DN	Insert part				Out diameter of Flange D2	Bolt hole C	Inset part B1	Inset part ℓ	Length E	Quantities of hole
	Out diameter		Inner diameter							
	D	d1	d2	d (min.)						
◆ 16	31.0 -0.7	22.40±0.20	1/34	18.0	95.0±1.0	70.0±1.0	15.0	30.0	15.0	4
◆ 20	35.5 -0.8	26.45±0.20	1/34	22.0	100.0±1.0	75.0±1.0	15.0	35.0	10.0	4
◆ 25	42.0 -1.0	32.55±0.25	1/34	25.0	125.0±1.0	90.0±1.0	19.0	39.0	5.0	4
◆ 30	48.5 -1.0	38.60±0.25	1/34	30.0	135.0±1.0	100.0±1.0	19.0	44.0	5.0	4
◆ 40	60.0 -1.2	48.70±0.30	1/37	41.0	140.0±1.0	105.0±1.0	19.0	55.0	5.0	4
◆ 50	73.0 -1.5	60.80±0.30	1/37	52.0	155.0±1.0	120.0±1.0	19.0	63.0	6.0	4
◆ 65	89.5 -1.5	76.80±0.30	1/41	67.0	175.0±1.0	140.0±1.0	19.0	69.0	7.0	4
◆ 75	104.0 -1.5	89.80±0.30	1/43	78.0	185.0±1.0	150.0±1.0	19.0	72.0	7.0	8
◆ 100	132.0 -1.8	115.00±0.35	1/44	100.0	210.0±1.0	175.0±1.0	19.0	92.0	8.0	8
◆ 125	160.5 -1.9	141.20±0.40	1/45	125.0	250.0±1.5	210.0±1.5	23.0	110.0	9.0	8
◆ 150	188.5 -2.0	166.50±0.50	1/45	146.0	280.0±1.5	240.0±1.5	23.0	136.0	9.0	8
◆ 200	242.0 -2.0	218.30±0.50	1/50	195.0	330.0±1.5	290.0±1.5	23.0	142.0	10.0	12
◆ 250	294.5 -2.0	270.0±0.60	1/50	247.0	400.0±1.5	355.0±1.5	25.0	154.0	10.0	12
◆ 300	346.5 -2.0	322.0±0.60	1/50	298.0	445.0±1.5	400.0±1.5	25.0	153.0	11.0	16

\*B1, E : reference \* Tolerance of 'ℓ' : +4, -0.5mm

# General Fittings

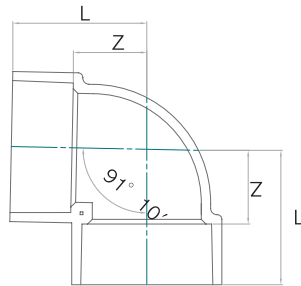
## Insert part



DN	d1		d2		$\ell$		t
	Typ.	Tolerance	Typ.	Tolerance	Typ.	Tolerance	min.
30	38.25	$\pm 0.25$	37.85	$\pm 0.25$	18	$\pm 1$	2.7
35	42.25	$\pm 0.25$	41.85	$\pm 0.25$	20	$\pm 1$	2.7
40	48.30	$\pm 0.30$	47.80	$\pm 0.30$	22	$\pm 1$	2.7
50	60.35	$\pm 0.30$	59.75	$\pm 0.30$	25	$\pm 1$	3.1
65	76.40	$\pm 0.30$	75.70	$\pm 0.30$	35	$\pm 1$	3.1
75	89.45	$\pm 0.30$	88.65	$\pm 0.30$	40	$\pm 2$	3.6
100	114.55	$\pm 0.35$	113.55	$\pm 0.35$	50	$\pm 2$	4.5
125	140.70	$\pm 0.40$	139.40	$\pm 0.40$	65	$\pm 2$	5.4
150	165.85	$\pm 0.45$	164.25	$\pm 0.45$	80	$\pm 2$	6.3
200	217.30	$\pm 0.55$	214.70	$\pm 0.55$	115	$\pm 10$	6.0
250	268.50	$\pm 0.65$	265.50	$\pm 0.65$	135	$\pm 10$	7.2
300	319.50	$\pm 0.75$	316.30	$\pm 0.75$	150	$\pm 10$	9.0
400	402.00	$\pm 0.85$	397.50	$\pm 0.85$	205	$\pm 10$	9.5

\* ◆ Non-KS(Korea Standard) product / Unit : mm

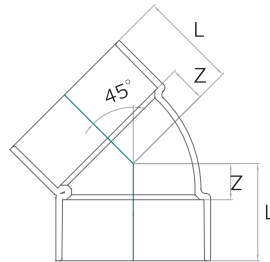
## 90 Elbow (DL)



DN	Z	L
35	24	44
40	27	49
50	33	58
65	42	77
75	48	88
100	62	112
125	75	140
150	88	168
◆ 200	120	224
◆ 250	147	272
◆ 300	178	329

\* Tolerance of Z : ±2mm

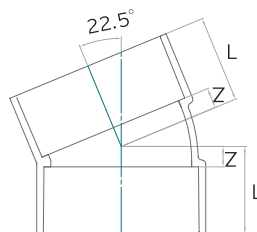
## 45 Elbow (45L)



DN	Z	L
35	13	33
50	18	43
65	22	57
75	25	65
100	30	80
125	38	103
150	44	124
◆ 200	56	166
◆ 250	68	198
◆ 300	77	226

\* Tolerance of Z : ±2mm

## 22.5 Elbow (22L)

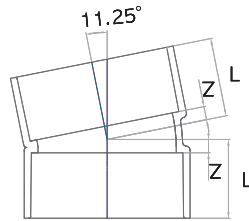


DN	Z	L
◆ 100	15	64
◆ 150	21	100

\* Tolerance of Z : ±2mm

# General Fittings

## 11.25 Elbow (11L)



DN	Z	L
◆ 100	10	59
◆ 150	15	94

\*Tolerance of Z :  $\pm 2$ mm

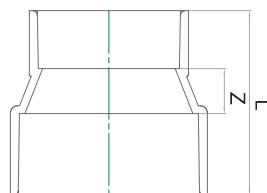
## Socket



DN	L	Z
50	53	3
65	73	3
75	84	4
100	104	4
125	134	4
150	164	4
◆ 200	214	4
◆ 250	280	8
◆ 300	314	8
◆ 400	420	10

\*Tolerance of Z :  $\pm 2$ mm

## Reducer (IN)

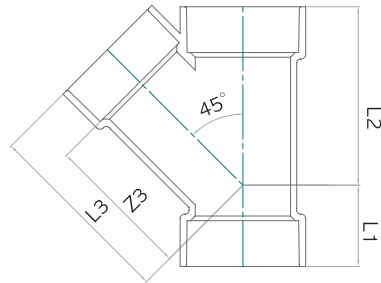


DN	L	Z
◆ 50 X 35	57	12
65 X 50	80	20
75 X 50	90	25
75 X 65	100	25
100 X 50	105	30
100 X 65	115	30
100 X 75	120	30
125 X 100	150	35
150 X 100	170	40
150 X 125	185	40
◆ 200 X 100	206	45
◆ 200 X 150	238	49

\*Tolerance of Z :  $\pm 2$ mm

\*◆Non-KS(Korea Standard) product / Unit : mm

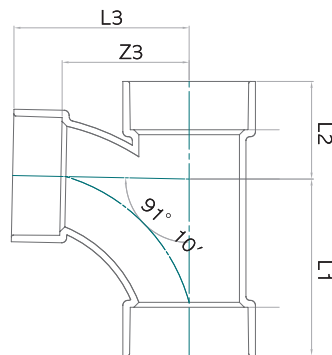
## 45Y



DN	Z3	L1	L2	L3
50	78	45	97	103
75	115	66	146	155
100	144	82	184	194
125	175	103	237	241
150	210	124	284	290
75 X 50	98	43	126	123
100 X 50	118	42	148	143
100 X 75	132	69	168	172
125 X 100	171	84	215	221

\* Tolerance of Z : ±2mm

## LT



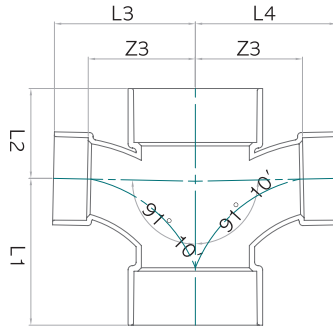
DN	Z3	L1	L2	L3
50	66	91	51	91
65	90	125	68	125
75	100	140	70	140
100	128	178	95	178
125	140	205	115	205
150	170	250	145	250
200	180	296	204	291
65 X 50	74	101	62	99
75 X 50	79	106	69	104
75 X 65	95	130	72	130
100 X 50	90	116	82	115
100 X 65	107	140	86	142
100 X 75	110	150	83	150
125 X 50	103	131	98	128
125 X 75	124	165	107	164
125 X 100	140	193	117	190
150 X 75	135	180	125	175
150 X 100	152	208	133	202
150 X 125	152	220	140	217
◆ 200 X 100	148	191	168	198
◆ 200 X 150	165	241	184	245

\* Tolerance of Z : ±2mm



# General Fittings

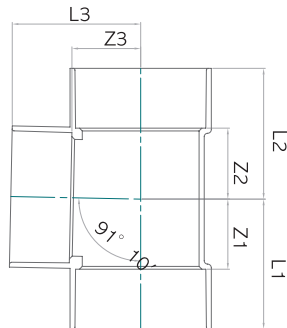
## WLT



DN	Z3	L1	Z2	L3	L4
75	100	140	78	140	140
100	128	178	95	178	178
◆ 75 X 50	79	106	69	104	104
100 X 75	110	150	90	150	150

\* Tolerance of Z : ±2mm

## DT

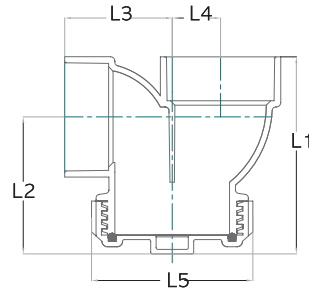


DN	Z3	L1	L2	L3
50	34	59	59	59
65	42	77	78	77
75	48	88	89	88
100	62	112	113	112
125	75	140	141	140
150	89	169	170	169
◆ 200	120	225	226	225
◆ 300	168	317	318	318
65 X 50	42	69	70	67
75 X 50	48	74	75	73
75 X 65	48	82	83	83
100 X 50	62	84	85	87
100 X 65	62	92	93	97
100 X 75	62	98	99	102
◆ 125 X 100	76	127	128	126
◆ 150 X 100	89	140	141	139

\* Tolerance of Z : ±2mm

\* ◆Non-KS(Korea Standard) product / Unit : mm

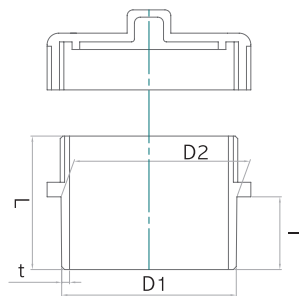
## P-Trap



	DN	L1	L3	L3	L4	L5
CO 65 CAP 사용	◆ 50	110	77	60	27	90
CO 75 CAP 사용	◆ 65	148	106	76	35	103
CO 100 CAP 사용	◆ 75	148	100	90	41	128
CO 125 CAP 사용	◆100	186	124	111	53	157

\* Tolerance of Z : ±2mm

## Maintenance cap



	DN	D1	D2	t	L	ℓ
◆ 50	60	62	2.0	46	26	
◆ 65	76	78	2.5	59	36	
◆ 75	89	92	3.0	67	42	
◆ 100	114	115.5	3.5	80	52	
◆ 125	140	143	4.5	98	67	
◆ 150	165	168	5.5	116	82	
◆ 200	216.3	220	7.5	171	105	

03

# Certification of Dury Chemical



Certification









발행번호 Issuance number		사업자등록증명서 Certificate of Business Registration (법인사업자) (Corporate Taxpayer)		처리기간 Processing time
3097-004-1043-271				즉시 Immediately
상호(법인명) 호명 Business registration number	우리화학(주) 우리화학(주) HUBI Chemical Co., Ltd. (003-01-08347)			
사업자등록번호 Business registration number	100-01-08343			
대표이사명 Name of representative Representative (Corporation) Registration number	최백규 최백규 Choi Baek Gyu (100111-0075280)			
주인명 Name of owner Registration number	100111-0075280			
사업시작연월일 Date of business commencement	1984년(Year) 07월(Month) 25일(Day)			
사업종류 Business type	제조업/제조 Manufacturing 제조업: 합성수지 및 기타 플라스틱 재료 Manufacture of Synthetic Resin and Other Plastic Materials 고무제품 및 플라스틱 제품 Manufacture of rubber packing			
공동사업자 Joint business owner	없습니다(No Data)	주민(사업자)등록번호 Resident (Business) registration No.		
<p>위와 같이 증명합니다. I certify that above information is true and correct to the best of my knowledge and belief. 본 증명서 발급일 현재 사실로 믿을 수 있습니다. This information is true on the issuance date of this certification and has no effect subject to change in the future. 중정본 임의(제어)인(상호, 사업(대표)명, 약어, 공적, 강제주소) 및 실제 권리관계를 증명하는 효력이 없습니다. Arbitrary data in English letter of company, name of representative, business type, business line, detail address do not hold a power to prove the actual relationship of rights.</p>				
발행처 Issuance center	2021년 5월 05일 Year: Month: Day	<p>김해세무서장 (인) Head of Gimhae District Tax Office (stamp)</p>		
국세청 Korea Revenue Authority				

Certificate of Business Registration

Document confirmation number : 1306-7400-9607-5671 (Person of request: Dury Chemical)

Original

Attachment Form #1 of annex 6 (Attachment 201.10.30): (Date is reported from business registration number registration information data page)

Plant Registration Certificate (Application) Form (Next page)

Vehicle type (conventional) : [Blank]

Application Number	Application Date	Processing Date	Issuance

Applicant

Name of Company	Phone Number
Dury Chemical Co. Ltd.	010-123-7830
Name of CEO	Date of birth (corporate registration no.)
Choi Baek Gyu	100111-0075280
Address of CEO (Location of corporate)	
Gyeongnam Gimhae city Sanglimmyeon Sanglimmyeon 024 90	

Content of Registration

Location of Plant	Land Category	Property Status
Name of land: Gyeongnam Gimbhae city Sanglimmyeon Sanglimmyeon 024 90		Owned ( ) / Rent ( )
Use Number: Gyeongnam Gimbhae city Sanglimmyeon Sanglimmyeon 024 90		
Reg. Date: 2012-12-30	Date of business commencement	Number of Employees
2012-12-30		14/0 / 7 / 1
Description of Plant (Classification number) Plastic wire, knit, pipe and hose production (2211)		
Area of Site	Manufacturing Facilities	Other Facilities
24,044.00	10,000.00	1,403.21

Registration Condition

Change of registration and change of related content such as extension (afterward date and content)  
Deposal of business name (change registration date: 2013.12.05)

I hereby apply for a Plant Registration Certificate in accordance with Article 12-3 of the Industrial Cluster Development and Factory Establishment Act.  
December 11, 2013  
Applicant: Dury Chemical (signature or stamp)  
Dear Gimhae mayor

Service Charge: 1000 Won

I hereby certify that the above plant is registered in accordance with Article 10-1 of the Industrial Cluster Development and Factory Establishment Act.  
December 11, 2013  
Gimhae mayor (stamp)

2106-004/004000 paper 9/107 (10/20/2013)

Seodangyeong / December 11 2013

This certificate is issued through internet, and any certificate or modification can be checked through confirmation menu of internet issuance document of call compliant 24hr (except on public holidays, 090 days from date of issuance). Moreover, it can be checked with barcode located at bottom of document (localization of scanner document confirmation program).

Plant Registration Certificate

Certificate No : QKS 5441

**QUALITY MANAGEMENT SYSTEM CERTIFICATE**

**DURY CHEMICAL CO., LTD.**

826-90, SAEMGNIHIM-DEROO, SAEMGNIHIM-MYEON, GIMHAE-SI, GYEONGSANGNAM-DO, 50800, KOREA

This is to certify that organization above has been audited and registered by KTR-CC for the SCOPE described as follows:

**QUALITY MANAGEMENT SYSTEM STANDARD**  
**ISO 9001:2015 / KS Q ISO 9001:2015**

SCOPE :  
DESIGN & DEVELOPMENT AND MANUFACTURE OF UNPLASTICIZED POLYVINYL CHLORIDE PIPES FOR GENERAL SERVICE UNPLASTICIZED POLYVINYL CHLORIDE PIPES FITTINGS FOR DRINK UNPLASTICIZED POLYVINYL CHLORIDE PIPES FOR WATER SUPPLY, RIGID UNPLASTICIZED POLYVINYL CHLORIDE PIPE FITTINGS FOR WATER SUPPLY, LOW NOISE CONTROL UNPLASTICIZED POLYVINYL CHLORIDE APPROPINCEA, LOW NOISE CONTROL UNPLASTICIZED POLYVINYL CHLORIDE PIPE FITTINGS(CNC), HIGH IMPACT UNPLASTICIZED POLYVINYL CHLORIDE PIPE FOR SEWERAGE, UNPLASTICIZED POLYVINYL CHLORIDE PIPE FITTINGS FOR SEWERAGE, UNPLASTICIZED POLYVINYL CHLORIDE INSULATION CHANGERS FOR SEWERAGE, STRUCTURED WALL POLYVINYL CHLORIDE(PVC) PIPES FOR HIGH-PRESSURE UNDERGROUND ORANGE AND SEWERAGE DOUBLE-WALL CORRUGATED PIPE, EDK AND EDK HOSE/SLURRY HOSE/RAIN SAMOON

EXCLUDED REQUIREMENT [ NONE ]

Valid Until : MARCH 10, 2024  
Registered Date : MARCH 11, 2000  
Issued Date : MARCH 05, 2021

**KTR CERTIFICATION CENTER**  
#501, 646-30, Hwajong-gu, Goyang-si, Gyeonggi-do, Korea  
Tel : 82-2-2099-3450/82-70-4010-8981 Web : www.ktrcc.or.kr

This certificate remains the property of KTR-CC. This certificate is accredited by KAB which is IAF MLA joined corporation. If not received further management audit within a given period, this certificate will be canceled.

KTR-CC SINCE 1999 KAB-KC-07 IAF

Quality Management System Certificate

Identification number R5112-0417

**Confirmation certificate of technology innovation type small and medium business (INNO-BIZ)**

Name of company : Dury Chemical Co. Ltd.  
CEO : Choi Baek Gyu  
Location : Gyeongnam Gimhae city Sanglimmyeon Bonglimli 404  
Class : A  
Expiration date: 2020. 8. 16 ~ 2023. 8. 15

The company above is confirmed to be a technology innovation type small and medium business which was selected by small and medium business discovery promotion program.

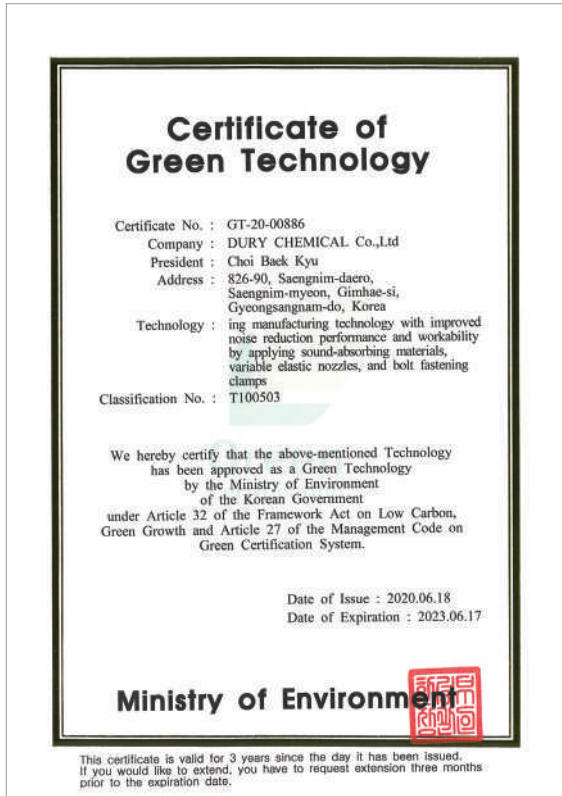
\* 11.8.5 "Renewance of expiration date renewal"

Comparison of original (stamp)

August 5, 2020

Head of Small and Medium Business Administration (stamp)

INNO-BIZ



Certificate of Green Technology



Q-MARK  
NC PIPE



Q-MARK  
NC2 Fittings



Q-MARK  
Triple-layer Elbow





**Q-MARK**  
EDR PIPE



**Q-MARK**  
EDR Fittings



**Q-MARK**  
NC Fittings



**Q-MARK**  
URF Fittings



**Q-MARK**  
Spiral PIPE



**Q-MARK**  
URFS



**Q-MARK**  
Sleeve



**Q-MARK**  
Hard polyvinyl chloride waterspout for sewer



Certificate of Sanitation Safety Standard  
(KCW-2011-0118)



Certificate of Sanitation Safety Standard  
(KCW-2011-0119)



KS M 3401  
(2019)



KS M 3402  
(2019)

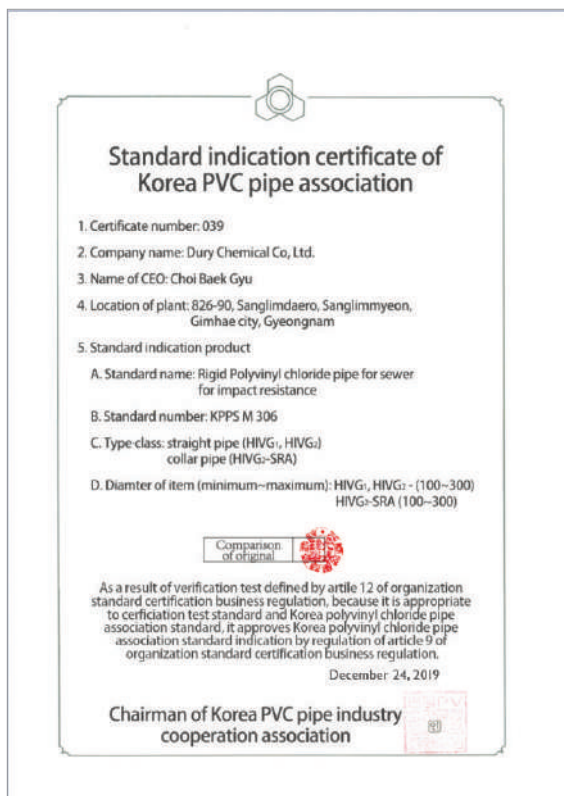




**KS M 3404**  
(2019)



**KS M 3410**  
(2019)



**KPPS M 306**



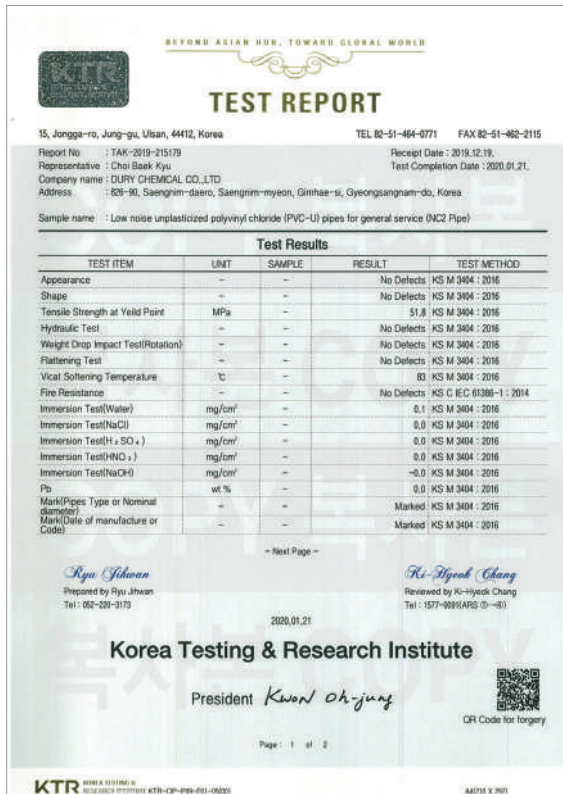
**KPPS M 305**



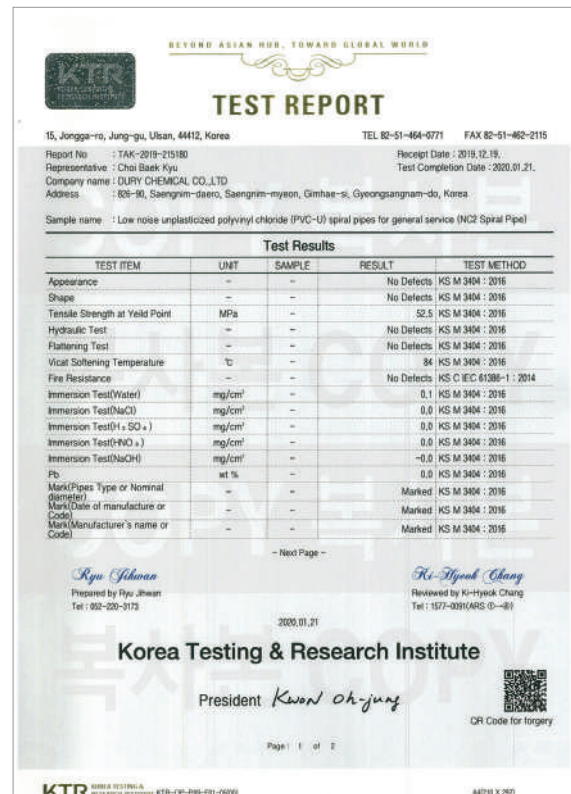
KPPS M 303



KPPS M 302




Test Report (NC2 pipe)



Test Report (NC2 spiral pipe)



BEYOND ASIAN HUB, TOWARD GLOBAL WORLD



## TEST REPORT

15, Jongga-ro, Jung-gu, Ulsan, 44112, Korea      TEL 82-51-464-0771      FAX 82-51-462-2115

Report No : TAK-2019-215188      Receipt Date : 2019.12.19.  
 Representative : Choi Baek Kyu      Test Completion Date : 2020.01.22.  
 Company name : DURY CHEMICAL CO.,LTD  
 Address : 826-90, Saengnim-daero, Saengnim-myeon, Gimhae-si, Gyeongsangnam-do, Korea

Sample name : Low noise unplasticized polyvinyl chloride (PVC-U) pipe fittings with rubber ring type for drain (NC2 Fittings)

Test Results				
TEST ITEM	UNIT	SAMPLE	RESULT	TEST METHOD
Appearance	--	--	No Defects	KS M 3410 : 2016
Shape	--	--	No Defects	KS M 3410 : 2016
Tensile Strength at Yield Point	MPa	--	55.9	KS M 3410 : 2016
Hydraulic Test	--	--	No Defects	KS M 3410 : 2016
Flattening Test	--	--	No Defects	KS M 3410 : 2016
Vicat Softening Temperature	°C	--	78	KS M 3410 : 2016
Immersion Test(Water)	mg/cm <sup>2</sup>	--	0.1	KS M 3410 : 2016
Immersion Test(NaCl)	mg/cm <sup>2</sup>	--	0.0	KS M 3410 : 2016
Immersion Test(H + SO <sub>2</sub> )	mg/cm <sup>2</sup>	--	0.1	KS M 3410 : 2016
Immersion Test(HNO <sub>3</sub> )	mg/cm <sup>2</sup>	--	0.1	KS M 3410 : 2016
Immersion Test(NaOH)	mg/cm <sup>2</sup>	--	-0.0	KS M 3410 : 2016
Pb	wt %	--	0.0	KS M 3410 : 2016

Usage of Report : QUALITY CONTROL

-- Next Page --


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Prepared by Ryu Jihwan  
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*Ki-Hyeok Chang*  
Reviewed by Ki-Hyeok Chang  
Tel : 1577-0091(ARS 01-90)

2020.01.22

### Korea Testing & Research Institute


President *Kwon Oh-jung*

  
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KTR KOREA TESTING & RESEARCH INSTITUTE KTRB-CPI-P08-F01-02020      A4710 X 2101

BEYOND ASIAN HUB, TOWARD GLOBAL WORLD



## TEST REPORT

15, Jongga-ro, Jung-gu, Ulsan, 44112, Korea      TEL 82-51-464-0771      FAX 82-51-462-2115

Report No : TAK-2019-215177      Receipt Date : 2019.12.19.  
 Representative : Choi Baek Kyu      Test Completion Date : 2020.01.21.  
 Company name : DURY CHEMICAL CO.,LTD  
 Address : 826-90, Saengnim-daero, Saengnim-myeon, Gimhae-si, Gyeongsangnam-do, Korea

Sample name : Low noise unplasticized polyvinyl chloride (PVC-U) Third floor pipes for general service (NC Pipe)

Test Results				
TEST ITEM	UNIT	SAMPLE	RESULT	TEST METHOD
Appearance	--	--	No Defects	KS M 3404 : 2016
Shape	--	--	No Defects	KS M 3404 : 2016
Tensile Strength at Yield Point	MPa	--	48.6	KS M 3404 : 2016
Hydraulic Test	--	--	No Defects	KS M 3404 : 2016
Weight Drop Impact Test(Rotation)	--	--	No Defects	KS M 3404 : 2016
Flattening Test	--	--	No Defects	KS M 3404 : 2016
Vicat Softening Temperature	°C	--	83	KS M 3404 : 2016
Fire Resistance	--	--	No Defects	KS C IEC 61386-1 : 2014
Immersion Test(Water)	mg/cm <sup>2</sup>	--	0.1	KS M 3404 : 2016
Immersion Test(NaCl)	mg/cm <sup>2</sup>	--	0.0	KS M 3404 : 2016
Immersion Test(H + SO <sub>2</sub> )	mg/cm <sup>2</sup>	--	0.1	KS M 3404 : 2016
Immersion Test(HNO <sub>3</sub> )	mg/cm <sup>2</sup>	--	0.0	KS M 3404 : 2016
Immersion Test(NaOH)	mg/cm <sup>2</sup>	--	-0.0	KS M 3404 : 2016
Pb	wt %	--	0.0	KS M 3404 : 2016
Mark(Pipes Type or Nominal diameter)	--	--	Marked	KS M 3404 : 2016
Mark(Date of manufacture or Code)	--	--	Marked	KS M 3404 : 2016

-- Next Page --


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### Korea Testing & Research Institute

President *Kwon Oh-jung*

  
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KTR KOREA TESTING & RESEARCH INSTITUTE KTRB-CPI-P08-F01-02020      A4710 X 2101

Test Report  
(NC2 fitting)

Test Report  
(NC pipe)

BEYOND ASIAN HUB, TOWARD GLOBAL WORLD



## TEST REPORT

15, Jongga-ro, Jung-gu, Ulsan, 44112, Korea      TEL 82-51-464-0771      FAX 82-51-462-2115

Report No : TAK-2019-215178      Receipt Date : 2019.12.19.  
 Representative : Choi Baek Kyu      Test Completion Date : 2020.01.21.  
 Company name : DURY CHEMICAL CO.,LTD  
 Address : 826-90, Saengnim-daero, Saengnim-myeon, Gimhae-si, Gyeongsangnam-do, Korea

Sample name : Low noise unplasticized polyvinyl chloride (PVC-U) Third floor spiral pipes with for general service (NC Spiral Pipe)

Test Results				
TEST ITEM	UNIT	SAMPLE	RESULT	TEST METHOD
Appearance	--	--	No Defects	KS M 3404 : 2016
Shape	--	--	No Defects	KS M 3404 : 2016
Tensile Strength at Yield Point	MPa	--	48.2	KS M 3404 : 2016
Hydraulic Test	--	--	No Defects	KS M 3404 : 2016
Flattening Test	--	--	No Defects	KS M 3404 : 2016
Vicat Softening Temperature	°C	--	83	KS M 3404 : 2016
Fire Resistance	--	--	No Defects	KS C IEC 61386-1 : 2014
Immersion Test(Water)	mg/cm <sup>2</sup>	--	0.1	KS M 3404 : 2016
Immersion Test(NaCl)	mg/cm <sup>2</sup>	--	0.0	KS M 3404 : 2016
Immersion Test(H + SO <sub>2</sub> )	mg/cm <sup>2</sup>	--	0.0	KS M 3404 : 2016
Immersion Test(HNO <sub>3</sub> )	mg/cm <sup>2</sup>	--	0.0	KS M 3404 : 2016
Immersion Test(NaOH)	mg/cm <sup>2</sup>	--	-0.0	KS M 3404 : 2016
Pb	wt %	--	0.0	KS M 3404 : 2016
Mark(Pipes Type or Nominal diameter)	--	--	Marked	KS M 3404 : 2016
Mark(Date of manufacture or Code)	--	--	Marked	KS M 3404 : 2016
Mark(Manufacturer's name or Code)	--	--	Marked	KS M 3404 : 2016

-- Next Page --


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2020.01.21

### Korea Testing & Research Institute

President *Kwon Oh-jung*


  
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KTR KOREA TESTING & RESEARCH INSTITUTE KTRB-CPI-P08-F01-02020      A4710 X 2101

Test Report  
(NC spiral pipe)

BEYOND ASIAN HUB, TOWARD GLOBAL WORLD



## TEST REPORT

15, Jongga-ro, Jung-gu, Ulsan, 44112, Korea      TEL 82-51-464-0771      FAX 82-51-462-2115

Report No : TAK-2019-215187      Receipt Date : 2019.12.18.  
 Representative : Choi Baek Kyu      Test Completion Date : 2020.01.22.  
 Company name : DURY CHEMICAL CO.,LTD  
 Address : 826-90, Saengnim-daero, Saengnim-myeon, Gimhae-si, Gyeongsangnam-do, Korea

Sample name : Low noise unplasticized polyvinyl chloride (PVC-U) pipe fittings with rubber ring type for drain (NC Fittings)

Test Results				
TEST ITEM	UNIT	SAMPLE	RESULT	TEST METHOD
Appearance	--	--	No Defects	KS M 3410 : 2016
Shape	--	--	No Defects	KS M 3410 : 2016
Tensile Strength at Yield Point	MPa	--	50.8	KS M 3410 : 2016
Hydraulic Test	--	--	No Defects	KS M 3410 : 2016
Flattening Test	--	--	No Defects	KS M 3410 : 2016
Vicat Softening Temperature	°C	--	79	KS M 3410 : 2016
Immersion Test(Water)	mg/cm <sup>2</sup>	--	0.0	KS M 3410 : 2016
Immersion Test(NaCl)	mg/cm <sup>2</sup>	--	0.0	KS M 3410 : 2016
Immersion Test(H + SO <sub>2</sub> )	mg/cm <sup>2</sup>	--	0.0	KS M 3410 : 2016
Immersion Test(HNO <sub>3</sub> )	mg/cm <sup>2</sup>	--	0.1	KS M 3410 : 2016
Immersion Test(NaOH)	mg/cm <sup>2</sup>	--	-0.0	KS M 3410 : 2016
Pb	wt %	--	0.0	KS M 3410 : 2016

-- Next Page --


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2020.01.22

### Korea Testing & Research Institute

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KTR KOREA TESTING & RESEARCH INSTITUTE KTRB-CPI-P08-F01-02020      A4710 X 2101

Test Report  
(NC fitting)



BEYOND ASIAN HUB, TOWARD GLOBAL WORLD



## TEST REPORT

15, Jongga-ro, Jung-gu, Ulsan, 44412, Korea      TEL 82-51-464-0771      FAX 82-51-462-2115

Report No : TAK-2019-215182      Receipt Date : 2019.12.19.  
 Representative : Choi Baek Kyu      Test Completion Date : 2020.01.22.  
 Company name : DURY CHEMICAL CO.,LTD.  
 Address : 829-90, Saengnim-daero, Saengnim-myeon, Gimhae-si, Gyeongsangnam-do, Korea

Sample name : High-strength pipe for basement pipe (EDR Pipe)

Test Results			
TEST ITEM	UNIT	SAMPLE	RESULT
Appearance	-	-	No Defects
Shape	-	-	No Defects
Tensile Strength	MPa	-	53
Weight Drop Impact Test	-	-	No Defects
Hydraulic Test (1.5 MPa)	-	-	No Defects
Hydraulic Test in Joint(0.35 MPa)	-	-	No Defects
Longitudinal reversion	%	-	1
Flattening Test	-	-	No Defects
Vicat Softening Temperature	°C	-	85
Immersion Test(Water)	mg/cm <sup>2</sup>	-	0.0
Immersion Test(H + SO <sub>2</sub> )	mg/cm <sup>2</sup>	-	0.0
Immersion Test(HNO <sub>3</sub> )	mg/cm <sup>2</sup>	-	0.0
Immersion Test(NaCl)	mg/cm <sup>2</sup>	-	0.0
Immersion Test(NaOH)	mg/cm <sup>2</sup>	-	-0.0

- Next Page -

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*Ki-Hyeok Chang*  
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2020.01.22

**Korea Testing & Research Institute**

President *Kwon Oh-jung*




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KTR KOREA TESTING & RESEARCH INSTITUTE KTR-CO-P08-F01-00201      44719 X 761

Test Report (EDR pipe)

BEYOND ASIAN HUB, TOWARD GLOBAL WORLD



## TEST REPORT

15, Jongga-ro, Jung-gu, Ulsan, 44412, Korea      TEL 82-51-464-0771      FAX 82-51-462-2115

Report No : TAK-2019-215190      Receipt Date : 2019.12.19.  
 Representative : Choi Baek Kyu      Test Completion Date : 2020.01.22.  
 Company name : DURY CHEMICAL CO.,LTD.  
 Address : 829-90, Saengnim-daero, Saengnim-myeon, Gimhae-si, Gyeongsangnam-do, Korea

Sample name : Fittings connecting high-strength EDR pipes for basement drain (EDR Fittings)

Test Results			
TEST ITEM	UNIT	SAMPLE	RESULT
Appearance	-	-	No Defects
Shape	-	-	No Defects
Tensile Strength at Yield Point	MPa	-	45.7
Hydraulic Test	-	-	No Defects
Flattening Test	-	-	No Defects
Vicat Softening Temperature	°C	-	77
Immersion Test(Water)	mg/cm <sup>2</sup>	-	0.0
Immersion Test(NaCl)	mg/cm <sup>2</sup>	-	0.0
Immersion Test(H + SO <sub>2</sub> )	mg/cm <sup>2</sup>	-	0.0
Immersion Test(HNO <sub>3</sub> )	mg/cm <sup>2</sup>	-	0.1
Immersion Test(NaOH)	mg/cm <sup>2</sup>	-	-0.0
Pb	wt %	-	0.0

- Usage of Report : QUALITY CONTROL

- Next Page -


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*Ki-Hyeok Chang*  
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2020.01.22

**Korea Testing & Research Institute**

President *Kwon Oh-jung*




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KTR KOREA TESTING & RESEARCH INSTITUTE KTR-CO-P08-F01-00201      44719 X 761

Test Report (EDR fitting)

BEYOND ASIAN HUB, TOWARD GLOBAL WORLD



## TEST REPORT

15, Jongga-ro, Jung-gu, Ulsan, 44412, Korea      TEL 82-51-464-0771      FAX 82-51-462-2115

Report No : TAK-2019-215181      Receipt Date : 2019.12.19.  
 Representative : Choi Baek Kyu      Test Completion Date : 2020.01.21.  
 Company name : DURY CHEMICAL CO.,LTD.  
 Address : 829-90, Saengnim-daero, Saengnim-myeon, Gimhae-si, Gyeongsangnam-do, Korea

Sample name : Unplasticized polyvinyl chloride(PVC-U) spiral pipes for general service (Spiral Pipe)

Test Results			
TEST ITEM	UNIT	SAMPLE	RESULT
Appearance	-	-	No Defects
Shape	-	-	No Defects
Tensile Strength at Yield Point	MPa	-	48.2
Hydraulic Test	-	-	No Defects
Vicat Softening Temperature	°C	-	83
Immersion Test(Water)	mg/cm <sup>2</sup>	-	0.1
Immersion Test(NaCl)	mg/cm <sup>2</sup>	-	0.0
Immersion Test(H + SO <sub>2</sub> )	mg/cm <sup>2</sup>	-	0.0
Immersion Test(HNO <sub>3</sub> )	mg/cm <sup>2</sup>	-	0.0
Immersion Test(NaOH)	mg/cm <sup>2</sup>	-	-0.0
Pb	wt %	-	0.0
Mark(Pipes Type or Nominal diameter)	-	-	Marked
Mark(Date of manufacture or Code)	-	-	Marked
Mark(Manufacturer's name or Code)	-	-	Marked

- Usage of Report : QUALITY CONTROL

- Next Page -


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*Ki-Hyeok Chang*  
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Tel : 1577-0091(ARS 01-01)

2020.01.21

**Korea Testing & Research Institute**

President *Kwon Oh-jung*



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Page : 1 of 2

KTR KOREA TESTING & RESEARCH INSTITUTE KTR-CO-P08-F01-00201      44719 X 761

Test Report (Spiral pipe)

BEYOND ASIAN HUB, TOWARD GLOBAL WORLD



## TEST REPORT

15, Jongga-ro, Jung-gu, Ulsan, 44412, Korea      TEL 82-51-464-0771      FAX 82-51-462-2115

Report No : TAK-2019-215176      Receipt Date : 2019.12.19.  
 Representative : Choi Baek Kyu      Test Completion Date : 2020.01.21.  
 Company name : DURY CHEMICAL CO.,LTD.  
 Address : 829-90, Saengnim-daero, Saengnim-myeon, Gimhae-si, Gyeongsangnam-do, Korea

Sample name : Unplasticized polyvinyl chloride (PVC-U) pipes for general service(VG2)

Test Results			
TEST ITEM	UNIT	SAMPLE	RESULT
Appearance	-	-	No Defects
Shape	-	-	No Defects
Tensile Strength at Yield Point	MPa	-	50.9
Hydraulic Test	-	-	No Defects
Flattening Test	-	-	No Defects
Vicat Softening Temperature	°C	-	83
Immersion Test(Water)	mg/cm <sup>2</sup>	-	0.1
Immersion Test(NaCl)	mg/cm <sup>2</sup>	-	0.0
Immersion Test(H + SO <sub>2</sub> )	mg/cm <sup>2</sup>	-	0.0
Immersion Test(HNO <sub>3</sub> )	mg/cm <sup>2</sup>	-	0.0
Immersion Test(NaOH)	mg/cm <sup>2</sup>	-	-0.0
Pb	wt %	-	0.0
Mark(Standard Marked diagram)	-	-	Marked
Mark(Pipes Type or Nominal diameter)	-	-	Marked
Mark(Date of manufacture or Code)	-	-	Marked
Mark(Manufacturer's name or Code)	-	-	Marked

- Usage of Report : QUALITY CONTROL

- Next Page -

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2020.01.21

**Korea Testing & Research Institute**

President *Kwon Oh-jung*



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Page : 1 of 2

KTR KOREA TESTING & RESEARCH INSTITUTE KTR-CO-P08-F01-00201      44719 X 761

Test Report (VG2)



BEYOND ASIAN HUB, TOWARD GLOBAL WORLD



## TEST REPORT

15, Jongga-ro, Jung-gu, Ulsan, 44112, Korea TEL 82-51-464-0771 FAX 82-51-462-2115

Report No : TAK-2019-215175 Receipt Date : 2019.12.18.  
 Representative : Choi BaeK Kyu Test Completion Date : 2020.01.21.  
 Company name : DURY CHEMICAL CO.,LTD.  
 Address : 826-90, Saengnim-dae-ro, Saengnim-myeon, Gimhae-si, Gyeongsangnam-do, Korea

Sample name : Unplasticized polyvinyl chloride (PVC-U) pipes for general service(VGI)

Test Results			
TEST ITEM	UNIT	SAMPLE	RESULT TEST METHOD
Appearance	-	-	No Defects KS M 3404 : 2016
Shape	-	-	No Defects KS M 3404 : 2016
Tensile Strength at Yield	MPa	-	52.1 KS M 3404 : 2016
Hydraulic Test	-	-	No Defects KS M 3404 : 2016
Flattening Test	-	-	No Defects KS M 3404 : 2016
Vicat Softening Temperature	°C	-	84 KS M 3404 : 2016
Immersion Test(Water)	mg/cm <sup>2</sup>	-	0.1 KS M 3404 : 2016
Immersion Test(NaCl)	mg/cm <sup>2</sup>	-	0.0 KS M 3404 : 2016
Immersion Test(H + SO <sub>4</sub> )	mg/cm <sup>2</sup>	-	0.0 KS M 3404 : 2016
Immersion Test(HNO <sub>3</sub> )	mg/cm <sup>2</sup>	-	0.0 KS M 3404 : 2016
Immersion Test(NaOH)	mg/cm <sup>2</sup>	-	-0.0 KS M 3404 : 2016
Pb	wt %	-	0.0 KS M 3404 : 2016
Mark(Standard Marked diagram)	-	-	Marked KS M 3404 : 2016
Mark(Pipes Type or Nominal diameter)	-	-	Marked KS M 3404 : 2016
Mark(Date of manufacture or Code)	-	-	Marked KS M 3404 : 2016
Mark(Manufacturer's name or Code)	-	-	Marked KS M 3404 : 2016

-- Next Page --


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KTR KOREA TESTING & RESEARCH INSTITUTE KTR-CO-008-F01-00000 A4710 X 7470

BEYOND ASIAN HUB, TOWARD GLOBAL WORLD



## TEST REPORT

15, Jongga-ro, Jung-gu, Ulsan, 44112, Korea TEL 82-51-464-0771 FAX 82-51-462-2115

Report No : TAK-2019-215170 Receipt Date : 2019.12.18.  
 Representative : Choi BaeK Kyu Test Completion Date : 2020.01.22.  
 Company name : DURY CHEMICAL CO.,LTD.  
 Address : 826-90, Saengnim-dae-ro, Saengnim-myeon, Gimhae-si, Gyeongsangnam-do, Korea

Sample name : Unplasticized polyvinyl chloride (PVC-U) pipes for water supply-1P(VP)

Test Results			
TEST ITEM	UNIT	SAMPLE	RESULT TEST METHOD
Appearance	-	-	No Defects KS M 3401 : 2019
Shape	-	-	No Defects KS M 3401 : 2019
Tensile Strength at Yield Point	MPa	-	51.3 KS M 3401 : 2019
Opacity	%	-	0.01 KS M 3401 : 2019
Vicat Softening Temperature	°C	-	84 KS M 3401 : 2019
Flattening Test	-	-	No Defects KS M 3401 : 2019
Mark	-	-	Marked KS M 3401 : 2019

-- Usage of Report : QUALITY CONTROL

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Page : 1 of 1

KTR KOREA TESTING & RESEARCH INSTITUTE KTR-CO-008-F01-00000 A4710 X 7470

Test Report  
(VGI)

Test Report  
(VP)

BEYOND ASIAN HUB, TOWARD GLOBAL WORLD



## TEST REPORT

15, Jongga-ro, Jung-gu, Ulsan, 44112, Korea TEL 82-51-464-0771 FAX 82-51-462-2115

Report No : TAK-2019-215186 Receipt Date : 2019.12.18.  
 Representative : Choi BaeK Kyu Test Completion Date : 2020.01.22.  
 Company name : DURY CHEMICAL CO.,LTD.  
 Address : 826-90, Saengnim-dae-ro, Saengnim-myeon, Gimhae-si, Gyeongsangnam-do, Korea

Sample name : Unplasticized polyvinyl chloride(PVC-U) pipe fittings for drain (DV)

Test Results			
TEST ITEM	UNIT	SAMPLE	RESULT TEST METHOD
Appearance	-	-	No Defects KS M 3410 : 2016
Shape	-	-	No Defects KS M 3410 : 2016
Tensile Strength at Yield Point	MPa	-	49.8 KS M 3410 : 2016
Hydraulic Test	-	-	No Defects KS M 3410 : 2016
Flattening Test	-	-	No Defects KS M 3410 : 2016
Vicat Softening Temperature	°C	-	79 KS M 3410 : 2016
Immersion Test(Water)	mg/cm <sup>2</sup>	-	0.1 KS M 3410 : 2016
Immersion Test(NaCl)	mg/cm <sup>2</sup>	-	0.0 KS M 3410 : 2016
Immersion Test(H + SO <sub>4</sub> )	mg/cm <sup>2</sup>	-	0.0 KS M 3410 : 2016
Immersion Test(HNO <sub>3</sub> )	mg/cm <sup>2</sup>	-	0.1 KS M 3410 : 2016
Immersion Test(NaOH)	mg/cm <sup>2</sup>	-	-0.0 KS M 3410 : 2016
Pb	wt %	-	0.0 KS M 3410 : 2016
Mark(Standard Marked diagram)	-	-	Marked KS M 3410 : 2016
Mark(Pipes Type or Nominal diameter)	-	-	Marked KS M 3410 : 2016
Mark(Date of manufacture or Code)	-	-	Marked KS M 3410 : 2016
Mark(Manufacturer's name or Code)	-	-	Marked KS M 3410 : 2016

-- Next Page --


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Test Report  
(DV)

BEYOND ASIAN HUB, TOWARD GLOBAL WORLD



## TEST REPORT

15, Jongga-ro, Jung-gu, Ulsan, 44112, Korea TEL 82-51-464-0771 FAX 82-51-462-2115

Report No : TAK-2019-215183 Receipt Date : 2019.12.18.  
 Representative : Choi BaeK Kyu Test Completion Date : 2020.01.22.  
 Company name : DURY CHEMICAL CO.,LTD.  
 Address : 826-90, Saengnim-dae-ro, Saengnim-myeon, Gimhae-si, Gyeongsangnam-do, Korea

Sample name : Rigid polyvinyl chloride (PVC-U) pipe fittings for water supply (TS-A)

Test Results			
TEST ITEM	UNIT	SAMPLE	RESULT TEST METHOD
Appearance	-	-	No Defects KS M 3402 : 2018
Shape	-	-	No Defects KS M 3402 : 2018
Tensile Strength at Yield Point	MPa	-	52.7 KS M 3402 : 2018
Hydraulic Test	-	-	No Defects KS M 3402 : 2018
Vicat Softening Temperature	°C	-	79 KS M 3402 : 2018
Mark(Standard Marked diagram)	-	-	Marked KS M 3402 : 2018
Mark(Pipes Type or Nominal diameter)	-	-	Marked KS M 3402 : 2018
Mark(Manufacturer's name or Code)	-	-	Marked KS M 3402 : 2018
Mark(Sign of Water)	-	-	Marked KS M 3402 : 2018

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Test Report  
(TS-A)

BEYOND ASIAN HUB, TOWARD GLOBAL WORLD



## TEST REPORT

15, Jongga-ro, Jung-gu, Ulsan, 44412, Korea      TEL 82-51-464-0771      FAX 82-51-462-2115

Report No : TAK-2019-215184      Receipt Date : 2019.12.19.  
 Representative : Choi Baek Kyu      Test Completion Date : 2020.01.22.  
 Company name : DURY CHEMICAL CO.,LTD.  
 Address : 826-90, Saengnim-daero, Saengnim-myeon, Gimhae-si, Gyeongsangnam-do, Korea

Sample name : Pipe fittings with rubber ring type for non-pressure drain (URF Fittings)

Test Results				
TEST ITEM	UNIT	SAMPLE	RESULT	TEST METHOD
Appearance	-	-	No Defects	Quality Assurance Standard(QM-3410-03)
Shape	-	-	No Defects	Quality Assurance Standard(QM-3410-02)
Hydraulic Test	-	-	No Defects	Quality Assurance Standard(QM-3410-03)
Flattening Test	-	-	No Defects	Quality Assurance Standard(QM-3410-03)
Impact Test	-	-	No Defects	Quality Assurance Standard(QM-3410-03)
Immersion Test(Water)	mg/cm <sup>2</sup>	-	0.0	Quality Assurance Standard(QM-3410-03)
Immersion Test(NaCl)	mg/cm <sup>2</sup>	-	0.0	Quality Assurance Standard(QM-3410-03)
Immersion Test(H + SO <sub>2</sub> )	mg/cm <sup>2</sup>	-	0.0	Quality Assurance Standard(QM-3410-03)
Immersion Test(HNO <sub>3</sub> )	mg/cm <sup>2</sup>	-	0.0	Quality Assurance Standard(QM-3410-03)
Immersion Test(NaOH)	mg/cm <sup>2</sup>	-	0.0	Quality Assurance Standard(QM-3410-03)
Pb	wt %	-	0.0	KS M 3410 : 2016

- Usage of Report : QUALITY CONTROL

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KTR KOREA TESTING & RESEARCH INSTITUTE KTRB-CSP-009-001-002001

44710 X 7601

**Test Report**  
(URF fitting)

BEYOND ASIAN HUB, TOWARD GLOBAL WORLD



## TEST REPORT

15, Jongga-ro, Jung-gu, Ulsan, 44412, Korea      TEL 82-51-464-0771      FAX 82-51-462-2115

Report No : TAK-2019-215189      Receipt Date : 2019.12.19.  
 Representative : Choi Baek Kyu      Test Completion Date : 2020.01.22.  
 Company name : DURY CHEMICAL CO.,LTD.  
 Address : 826-90, Saengnim-daero, Saengnim-myeon, Gimhae-si, Gyeongsangnam-do, Korea

Sample name : Sevlax with rubber ring type for non-pressure drain (URF/S)

Test Results				
TEST ITEM	UNIT	SAMPLE	RESULT	TEST METHOD
Appearance	-	-	No Defects	Quality Assurance Standard(QM-3410-02)
Shape	-	-	No Defects	Quality Assurance Standard(QM-3410-02)
Tensile Strength	MPa	-	26.4	Quality Assurance Standard(QM-3410-02)
Hydraulic Test	-	-	No Defects	Quality Assurance Standard(QM-3410-02)
Impact Test	-	-	No Defects	Quality Assurance Standard(QM-3410-02)
Vicat Softening Temperature	°C	-	83	Quality Assurance Standard(QM-3410-02)

- Usage of Report : QUALITY CONTROL

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2020.01.22

### Korea Testing & Research Institute

President *Kwon Oh-jung*




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KTR KOREA TESTING & RESEARCH INSTITUTE KTRB-CSP-009-001-002001

44710 X 7601

**Test Report**  
(URFS fitting)



## Quality Test Report

Number of Test : PA20000234


Name of Sample : NC2 (Low noise, Third floor pipes for general service)	Sample Specification : NC2 (SS-5) 100mm
Sampling Place : Durychemical Factory	Number of Test : PA20000234
Purpose of the test : For quality verification	Date of Test : 2020.09.16
Project name :	Collection date : 2020.08.21
Order :	Sample collector : Q.M.Mr. Yoon
Constructor :	Sampling Verifier : Q.M.Mr. Ha
Client :	Quantity :
National Facilities : None	Producer : Durychemical

Regarding the above samples requested for quality test and inspection, we inform you of the test results according to the test method below as follows.

No	Test	Test Method	Test Result	Responsible Technician		Test Inspector
				Certification (number)	Signature	
1	Noise Test (LAmax)	KSF 2871	43      dB	한국토지주택공사	사장	박영우

This test and inspection results are the results of samples submitted at the time of request, so use for other purposes is prohibited.

2020.09.



한국토지주택공사


Number : +82 42-966-8725-8729 / Fax : +82 42-966-8716  
 Address : (34047) 99, Expo-ro 539, Yuseong-gu, Daejeon

---

Precautions

The results cannot be guaranteed without the name and signature of the responsible technician and test Inspector.

**Quality Test Report**  
(NC2 - Toilet Elbow)



## Quality Test Report

Number of Test : PA20000237


Name of Sample : NC (Low noise, Third floor pipes for general service)	Sample Specification : 100mm
Sampling Place : Durychemical Factory	Number of Test : PA20000237
Purpose of the test : For quality verification	Date of Test : 2020.09.16
Project name :	Collection date : 2020.08.21
Order :	Sample collector : Q.M.Mr. Yoon
Constructor :	Sampling Verifier : Q.M.Mr. Ha
Client :	Quantity :
National Facilities : None	Producer : Durychemical

Regarding the above samples requested for quality test and inspection, we inform you of the test results according to the test method below as follows.

No	Test	Test Method	Test Result	Responsible Technician		Test Inspector
				Certification (number)	Signature	
1	Noise Test (LAmax)	KSF 2871	50      dB	한국토지주택공사	사장	박영우

This test and inspection results are the results of samples submitted at the time of request, so use for other purposes is prohibited.

2020.09.



한국토지주택공사


Number : +82 42-966-8725-8729 / Fax : +82 42-966-8716  
 Address : (34047) 99, Expo-ro 539, Yuseong-gu, Daejeon

---

Precautions

The results cannot be guaranteed without the name and signature of the responsible technician and test Inspector.

**Quality Test Report**  
(NC - Toilet Elbow)





## Quality Test Report

Number of Test : PA20000231

Name of Sample : VG2(Pipes for general service)	Sample Specification : 100mm
Sampling Place : Durychemical Factory	Number of Test : PA20000231
Purpose of the test : For quality verification	Date of Test : 2020. 09. 16
Project name :	Collection date : 2020.08.21
Order :	Sample collector : Q.M. Mr. Yoon
Constructor :	Sampling Verifier : Q.M.Mr. Ha
Client :	Quantity :
National Facilities : None	Producer : Durychemical


Regarding the above samples requested for quality test and inspection, we inform you of the test results according to the test method below as follows.

### Result

No	Test	Test Method	Test Result	Responsible Technician			Test Inspector	
				Certification (number)	Name	Signature	Name	Signature
1	Noise Test (L <sub>Amax</sub> )	KS F 2871	61 dB	한국토지주택공사 (KTH)	서민후		박정우	

This test and inspection results are the results of samples submitted at the time of request, so use for other purposes is prohibited.

2020. 09.



한국토지주택공사 사장공인

Number : +82 42-866-8725~8729 / Fax. +82 42-866—8716  
Address : (34047) 99, Expo-ro 539, Yuseong-gu, Daejeon

---

Precautions

The results cannot be guaranteed without the name and signature of the responsible technician and test Inspector.

**Quality Test Report**  
(VG2 - Toilet Elbow)

## Delivery performance of Construction pipes & fittings, 2017-2020

Construction company	Construction company	Construction company
BYC	DAEBANG Construction	SAEHAN
DL Construction	DAEBO E&C	SACPCM
DL E&C	DAESUNG Construction	SEOHAN E&C
GL Construction	DAEYANG Construction	SEOHAI Construction
GS E&C	DAEWOO E&C	SEOHEE Construction
IS Dongseo	DAEWOO Construction	SUNGSAN Construction
KCC E&C	DAEWON	SUNG AM
KD E&C	DAEZER Construction	SUNGWOO
KR Industry company	DAECHANG	SUNGJEE
LH	DONGDO	SUNGJI Machinery Industry
MH Construction	DONGMOON	SEYOUNG Construction
SG Construction	DONGBOO Construction	SEUM E&C
SH	DONGSUNG Construction	SOMANG Construction
SK E&C	DA E&C	CITY Cnstruction
Garam Construction	TONGYANG	SDA Construction
Gangnam Construction	DONGIL Construction	SHINSUNG E&C
KAESUNG Construction	DOOSAN E&C	SHINSEGAE E&C
KONKUK Construction	DOOJIN	SHINAN
KUNYOUNG	RAON Construction	SHINAN Construction
SM KEANGNAM	LOTTE Construction	SHINYOUNG E&C
GEONGWOO Construction	REGENCYVILL	SHINWON Construction
KYERYONG	MYEONG SEUNG	SHINIL
Korea Development Corporation	MOA Construction	STY Construction
GOWOON	MUNYOUNG Construction	SINHAI Construction
GWANGSIN Construction	MUNJANG Construction	SHINHWA
KWANGYANG E&C	BANDO Construction	SSANGYONG E&C
GOOSAN	BUMYANG	ANGANG E&C
KUKDONG E&C	BYUCKSAN E&C	YANGWOO Construction
KUMGANG E&C	BYUCKSAN Engineering	SN Construction
KUMGANG	BOKWANG Construction	SONE Construction
KUMHO E&C	BOMI E&C	ACE Construction
CAMUS E&C	SAMDO	YOUNGDONG E&C
NAMKWANG Construction	SAMBO Construction	YOUNGHWAA Construction
NAMKWANG	SAMBU	ONNURI Construction
NAMYANG Construction	SAMSUNG C&T	YOJIN E&C
NAMHAI Construction	SAMSUNG HOME E&C	WOONAM
DAIN Construction	SAMJUNG Construction	WOOMI Construction
DK Construction	SAMJUNG E&C	WOOBANG
DAEKWANG Construction	SAMHWAN	WOOSUNG Construction
DAEMYUNG Construction	NEWMILLENNIUM Construction	WOOSIN Construction

Construction company
WOOJIN E&C
WON E&C
WELCRON HANTEC
YOUSEUNG
U-TOP Construction
YOOHO
ISU Construction
SGC eTEC E&C
EE-HWA Construction
ILGOON
ILSHIN Construction
ILJOO Construction
JUNGWOO
JEIL E&C
JUNGHAE Construction
JUNGHUNG Construction
GM E&C
JIWON Construction
JINA
CHINHUNG
Changsung E&C
CHUNIL DEVELOPMENT
KD
KOLON GLOBAL
TAESUNG C&E
TAEYOUNG
TAEWANG
PACIFIC E&C
Fine&U
POSCO A&C
POSCO ICT
POSCO E&C
POONSAN Construction
P&G Construction
HANKUK
Halla
HANLIM Construction
HANSHIN
HANYANG
HANYANG Development

Construction company
HANIL E&C
HANJIN HEAVY I&C
Hanchang Construction
HANHWA E&C
HYUNDAI E&C
HYUNDAI DEVELOPMENT COMPANY
HYUNDAI ENGINEERING
HYUNDAI ENG
HYEONHAE E&C
HUEFORE
HOBAN
HONGSUNG
HWASUNG
HWASEONG CONSTRUCTION
HYOSAN
HYOSUNG
HEUNG HWA INDUSTRY
HEESANG
HIMCHAN Construction



## Delivery performance of EDR, 2017-2020

Construction company	Construction company	Construction company
DL Construction	DAECHANG	SUNG AM
DL E&C	DUKSANBEST	SUNGWOO
GL Construction	DONGKWANG Construction	SEUM E&C
GS E&C	DONGDO	CITY Cnstruction
IS Dongseo	DONGMOON	SHINKU Construction
KCC E&C	DONGBOO Construction	SDA Construction
KR Industry company	DONGSUNG Construction	SHINSUNG E&C
	DA E&C	SHINSEGAE E&C
SG Construction	TONGYANG	SHINWON Construction
SK E&C	DONGWOO	SHINIL
STX Construction	DONGWOO CM	STY Construction
KBI Construction	DONGWON Construction	SSANGYONG E&C
Gangnam Construction	DOOSAN E&C	ANGANG E&C
KAESUNG Construction	RAON Construction	YANGWOO Construction
KUNYOUNG	LOTTE Construction	ACE Construction
SM KEANGNAM	REGENCYVILL	YOUNGDONG E&C
KD Construction	MYEONG SEUNG	ONNURI Construction
GEONGWOO Construction	MOA Construction	YOJIN E&C
KYUNGIL Construction	MOONYOUNG	WOONAM
KYERYONG	MUNJANG Construction	WOOMI Construction
Korea Development Corporation	MIDEUM Construction	WOOBANG
GWANGSIN Construction	BANDO Construction	WOOSUNG Construction
KUMGANG	BUMYANG	WOO-TOP Construction
KSBJ	BYUCKSAN E&C	WON E&C
KUMHO E&C	BOKWANG Construction	YULIM E&C
CAMUS E&C	BOMI E&C	YUSUNG Construction
NAMKWANG Construction	BOOYOUNG	YOUSEUNG
NAMKWANG	SAMDO	U-TOP Construction
NAMYANG Construction	SAMBO Construction	YOOHO
DAIN Construction	SAMBU	EUNSUNG IND
DK Construction	SAMSUNG C&T	E-LAND Construction
DAEKWANG Construction	SAMSUNG HOME E&C	ISU Construction
DAEMYUNG Construction	SAMJUNG E&C	SGC eTEC E&C
DAEBANG Construction	NEWMILLENNIUM Construction	EE-HWA Construction
DAEBO E&C	SEORIN Construction	ILSUNG Construction
DAESUN Construction	SACPCM	ILSHIN Construction
DAESUNG Construction	SEOHAN E&C	ILJOO Construction
DAEYANG Construction	SEOHAI Construction	JUNGWOO
DAEWOO E&C	SEOHEE Construction	JEIL E&C
DAEWOO Construction	SEONGKWANG Construction	JUNGHUNG Construction

---

**Construction company**

JIANS Construction

GA Construction

GL Construction

JIWON Construction

JINA

CHINHUNG

CHANGSUNG E&amp;C

KOLON GLOBAL

TAERYONG

TAEYOUNG

TAEWANG E&amp;C

FINE Construction

POSCO ICT

POSCO E&amp;C

POONSAN Construction

P&amp;G Construction

HANKUK

HANNARE Construction

Halla

HANLIM Construction

HANSHIN

HANYANG

HANYANG Development

HANJIN HEAVY I&amp;C

HANHWA E&amp;C

HN

HYUNDAI E&amp;C

HDC

HDC I CONTROLS

HYUNDAI ENGINEERING

HYEONHAE E&amp;C

HUEFORE

HOBAN

HONGSUNG

HWASUNG

HYOSAN

HYOSUNG

HEUNGHWA Industry

HILLTOP Construction

HIMCHAN Construction

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# DURY CHEMICAL

GLOBAL LEADER COMPANY DURY CHEMICAL



# DURY CHEMICAL

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