

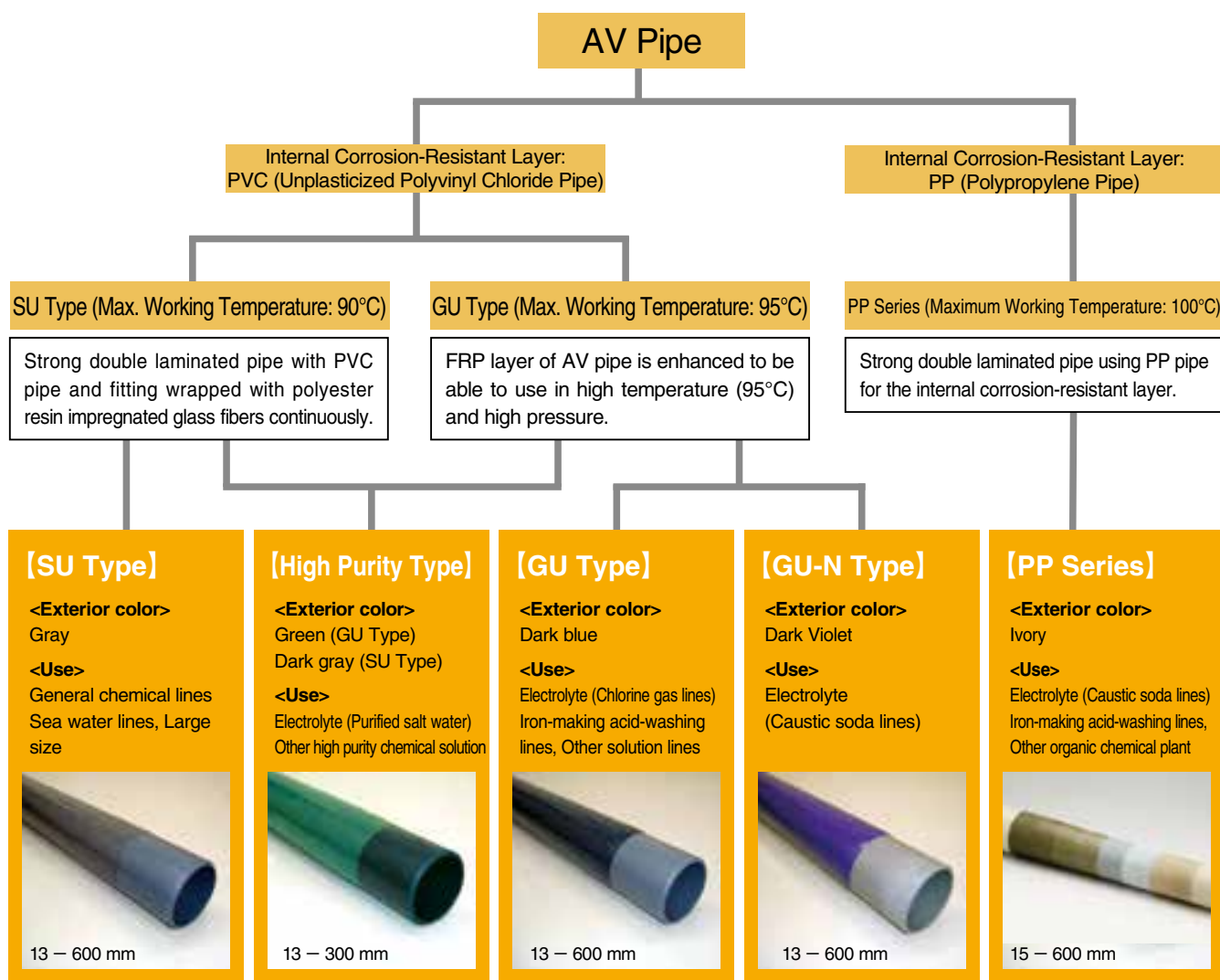
# AV Pipe & Fittings

Product Type/Prefabricated Product	P.112
AV Pipe	P.113
AV Fitting	P.114
Flange	P.118
Technical Document	P.119



*Strong*

## Type



\* Exterior color is changeable on request.

\* PP Series will be delivered only in prefabricated condition (end flange connection).

For details, please contact our nearest office.

## Prefab Product

"Field production is difficult because piping shape is complicated..."

"We want to minimize field fabrication..."

In these cases, we can manufacture them at our factory and deliver to you. Please feel free to contact us.



## PRODUCT MODEL CODE LIST

Type	Field	Material	Standard/Wall Thickness	Standard	Type	Size	Length
<b>P</b>	<b>*</b>	<b>*</b>	<b>**</b>	<b>J</b>	<b>N</b>	<b>***</b>	<b>04</b>
...	...	...	...	...	...	...	...
P Pipe	F SU G GU	U U-PVC 2 High Purity N GU-N	PP Straight Pipe VP UP Straight Pipe VU P6 Single-Side Sleeve VP U6 Single-Side Sleeve VU	J JIS	N Standard	013 13mm I 600 600mm	04 4m

## AV Pipe FRP Layer Wall Thickness

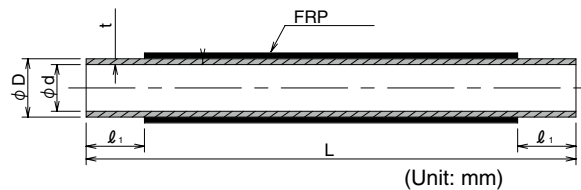
\* FRP layer wall thickness (mm) is reference value.  
It is not guaranteed.

Product Name	Size (mm)	FRP Layer Wall Thickness (mm)
AV-SU Pipe, Socket, Reducer	13 – 600	1.2
AV-SU Elbow, Tee		1.4
AV-GU Elbow, Tee	13 – 40	1.4
	13 – 40	1.2
	50 – 125	2.4
	150 – 350	3.8
	400, 450	5.2
	500, 600	5.9

## Straight Pipe

PRODUCT  
MODEL CODE

SU ▶	P	F	U	PP	J	N	Size	04
GU ▶	P	G	U	PP	J	N	Size	04



■ Dimensions Table (Unit: mm)

Size	L	ℓ <sub>1</sub>	D	d	t	Reference Weight (kg)	
						SU	GU
13	4000	45	18	13	2.5	1.50	1.50
16	4000	50	22	16	3.0	1.74	1.74
20	4000	55	26	20	3.0	2.37	2.37
25	4000	60	32	25	3.5	3.17	3.17
30	4000	65	38	31	3.5	3.79	3.79
40	4000	80	48	40	4.0	5.20	5.20
50	4000	90	60	51	4.5	7.00	8.32
65	4000	95	76	67	4.5	8.96	10.52
75	4000	100	89	77	6.0	12.64	13.94
100	4000	120	114	100	7.0	18.16	20.21

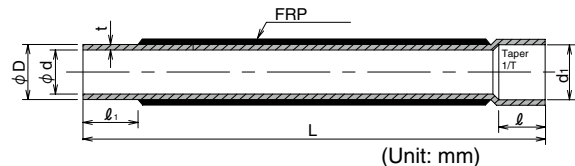
Size	L	ℓ <sub>1</sub>	D	d	t	Reference Weight (kg)	
						SU	GU
125	4000	150	140	125	7.5	23.64	25.93
150	4000	180	165	146	9.5	33.36	39.14
200	4000	190	216	194	11.0	49.38	58.45
250	4000	200	267	240	13.5	72.88	81.88
300	4000	200	318	286	16.0	101.38	110.73
350	4000	330	370	348	11.0	89.18	104.94
400	4000	370	420	395	12.5	112.20	145.15
450	4000	400	470	442	14.0	137.83	174.71
500	4000	410	520	489	15.5	166.08	215.78
600	4000	480	630	592	19.0	234.16	298.64

Notes: Dimension 300 mm is for SU Type and GU Type.

## Single-Side Sleeve

PRODUCT  
MODEL CODE

SU ▶	P	F	U	P6	J	N	Size	04
GU ▶	P	G	U	P6	J	N	Size	04



■ Dimensions Table (Unit: mm)

Size	L	ℓ <sub>1</sub>	ℓ	d <sub>1</sub>	1/T	D	d	t	Reference Weight (kg)	
									SU	GU
13	4000	45	26	18.40	1/30	18	13	2.5	1.50	1.50
16	4000	50	30	22.40	1/34	22	16	3.0	1.74	1.74
20	4000	55	35	26.45	1/34	26	20	3.0	2.37	2.37
25	4000	60	40	32.55	1/34	32	25	3.5	3.17	3.17
30	4000	65	44	38.60	1/34	38	31	3.5	3.79	3.79
40	4000	80	55	48.70	1/37	48	40	4.0	5.20	5.20
50	4000	90	63	60.80	1/37	60	51	4.5	7.00	8.32
65	4000	95	61	76.60	1/48	76	67	4.5	8.96	10.52
75	4000	100	64	89.60	1/49	89	77	6.0	12.64	13.94
100	4000	120	84	114.70	1/56	114	100	7.0	18.16	20.21

Size	L	ℓ <sub>1</sub>	ℓ	d <sub>1</sub>	1/T	D	d	t	Reference Weight (kg)	
									SU	GU
125	4000	150	104	140.80	1/58	140	125	7.5	23.64	25.93
150	4000	180	132	166.00	1/63	165	146	9.5	33.36	39.14
200	4000	190	145	217.00	1/50	216	194	11.0	49.38	58.45
250	4000	200	155	267.70	1/55	267	240	13.5	72.88	81.88
300	4000	200	155	318.70	1/55	318	286	16.0	101.38	110.73
350	4000	330	280	373.00	1/43	370	348	11.0	89.18	104.94
400	4000	370	320	423.00	1/48	420	395	12.5	112.20	145.15
450	4000	400	350	474.00	1/45	470	442	14.0	137.83	174.71
500	4000	410	350	524.50	1/50	520	489	15.5	166.08	215.78
600	4000	480	410	635.00	1/50	630	592	19.0	234.16	298.64

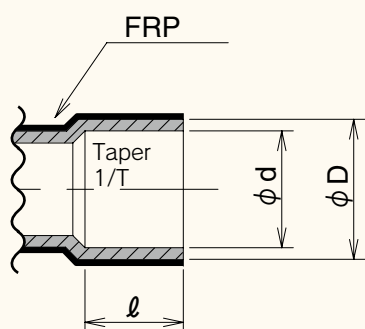
Notes: Dimension 300 mm is for SU Type and GU Type.

# PRODUCT MODEL CODE LIST

Type	Field	Material	Standard/Wall Thickness	Standard	Type	Size
*	*	*	**	J	N	***
⋮	⋮	⋮	⋮	⋮	⋮	⋮
T Elbow	F SU	U U-PVC	9L Elbow (90°)	J JIS	N Standard	013 13mm
B Bend	G GU	2 High Purity	90 Bend (90°)	V JIS		I 600 600mm
		N GU-N	4L Elbow (45°)			
			45 Bend (45°)			
			TE Tee			
			SO Socket			
			P6 Single-Side Sleeve VP			
			U6 Single-Side Sleeve VU			

## AV TS Fitting Common Dimensions

(Unit: mm)



Notes:  $\ell$  dimension differs slightly depending on the fitting such as bend, etc. Please refer to details in Fitting Dimensions Table.

For standard of 350 mm or over, please contact our nearest office.

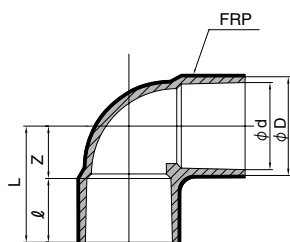
Size	D	d	$\ell$	1/T
13	24	18.40	26	1/30
16	29	22.40	30	1/34
20	33	26.45	35	1/34
25	40	32.55	40	1/34
30	46	38.60	44	1/34
40	57	48.70	55	1/37
50	70	60.80	63	1/37
65	87	76.60	61	1/48
75	102	89.60	64	1/49
100	130	114.70	84	1/56
125	157	140.85	104	1/58
150	186	166.00	132	1/63
200	235	217.00	145	1/50
250	295	268.20	155	1/48
300	336	318.70	175	1/55

## Elbow, Bend (90°)

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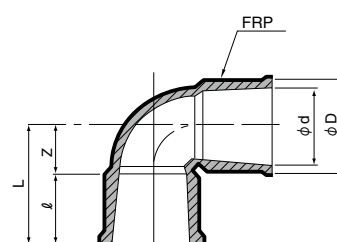
Elbow SU	▶	T	F	U	9L	J	N	Size
Elbow GU	▶	T	G	U	9L	J	N	Size
Bend SU	▶	B	F	U	90	V	N	Size
Bend GU	▶	B	G	U	90	V	N	Size

### Elbow



90° Elbow

### Bend



90° Bend

### Dimensions Table

(Unit: mm)

Size	L	$\ell$	Z	D	d	Reference Weight (kg)	
						SU	GU
13	36	26	10	24	18.40	0.05	0.05
16	43	30	13	29	22.40	0.07	0.07
20	50	35	15	33	26.45	0.09	0.09
25	58	40	18	40	32.55	0.15	0.15
30	65	44	21	46	38.60	0.20	0.20
40	82	55	27	57	48.70	0.30	0.30
50	96	63	33	70	60.80	0.40	0.48
65	110	61	49	87	76.60	0.60	0.70
75	120	64	56	102	89.60	0.98	1.16
100	153	84	69	130	114.70	1.85	2.19
125	188	104	84	157	140.85	3.06	3.32
150	230	132	98	186	166.00	5.03	5.90
200	265	145	120	240	217.00	7.97	9.40
250	311	155	156	295	268.20	13.16	15.30
300	350	175	175	347	319.60	17.20	20.40

### Dimensions Table

(Unit: mm)

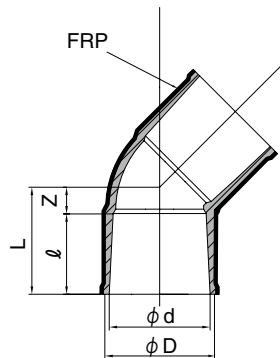
Size	L	$\ell$	Z	D	d	Reference Weight (kg)	
						SU	GU
75	137	72	65	101	89.80	0.80	0.88
100	172	92	80	129	115.00	1.50	1.70
125	237	112	125	156	141.20	2.60	2.90
150	260	140	120	185	166.50	4.10	4.80
200	341	145	196	240	217.00	7.70	9.20
250	402	155	247	293	268.20	11.00	12.70
300	395	155	230	337	318.70	12.20	14.00

Notes: 1. Elbow is standard, unless otherwise specified.  
2. Size of 350 mm or over can also be manufactured. Please consult our nearest office.

## Elbow, Bend (45°)

PRODUCT  
MODEL CODE

Elbow SU ▶	T	F	U	4L	J	N	Size
Elbow GU ▶	T	G	U	4L	J	N	Size
Bend SU ▶	B	F	U	45	V	N	Size
Bend GU ▶	B	G	U	45	V	N	Size



Elbow, Bend (45°)

### ■ Dimensions Table

45° Elbow 20 – 25 mm (Unit: mm)

Size	L	l	Z	D	d	Reference Weight (kg)	
						SU	GU
20	44	35	9	33	26.45	0.08	0.08
25	51	40	11	40	32.55	0.12	0.12

45° Bend 40 – 300 mm (Unit: mm)

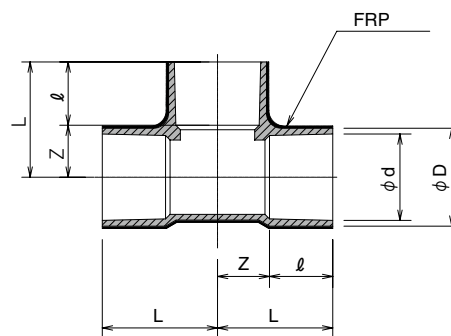
Size	L	l	Z	D	d	Reference Weight (kg)	
						SU	GU
40	69	55	14	57	48.70	0.30	0.30
50	80	63	17	70	60.80	0.40	0.40
65	81	61	20	87	76.60	0.57	0.63
75	97	72	25	101	89.80	0.65	0.72
100	122	92	30	129	115.00	1.30	1.40
125	149	112	37	156	141.20	2.10	2.30
150	184	140	44	185	166.50	3.10	3.60
200	193	145	48	240	217.00	5.30	6.30
250	213	155	58	293	268.20	7.20	8.30
300	225	155	70	337	318.70	9.30	10.70

Notes: Size of 350 mm or over can also be manufactured. Please consult our nearest office.

## Tee

PRODUCT  
MODEL CODE

SU ▶	T	F	U	TE	J	N	Size
GU ▶	T	G	U	TE	J	N	Size



Tee

### ■ Dimensions Table (Unit: mm)

Size	L	l	Z	D	d	Reference Weight (kg)	
						SU	GU
13	36	26	10	24	18.40	0.04	0.04
16	43	30	13	29	22.40	0.05	0.05
20	50	35	15	33	26.45	0.06	0.06
25	58	40	18	40	32.55	0.13	0.13
30	65	44	21	46	38.60	0.18	0.18
40	82	55	27	57	48.70	0.31	0.31
50	96	63	33	70	60.80	0.50	0.60
65	110	61	49	87	76.60	0.73	0.86

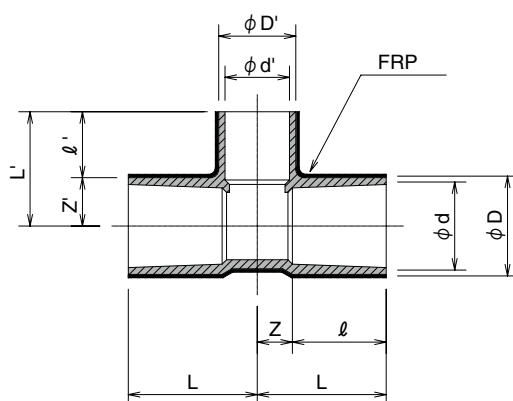
(Unit: mm)

Size	L	l	Z	D	d	Reference Weight (kg)	
						SU	GU
75	120	64	56	102	89.60	1.20	1.32
100	152	84	68	130	114.70	2.20	2.50
125	187	104	83	157	140.85	3.50	3.90
150	230	132	98	186	166.00	6.40	7.50
200	266	145	121	240	217.00	9.30	11.10
250	331	155	176	295	268.20	13.20	15.30
300	340	175	165	337	318.70	16.60	19.10

Notes: Size of 350 mm or over can also be manufactured. Please consult our nearest office.

# Reducing Tee

PRODUCT  
MODEL CODE

SU ▶ T F U TE J N Size  
GU ▶ T G U TE J N Size


Reducing Tee

## Dimensions Table

(Unit: mm)

Size	L	$\ell$	Z	D	d	L'	$\ell'$	Z'	D'	d'	Reference Weight (kg)	
											SU	GU
16× 13	41	30	11	29	22.40	38	26	12	24	18.40	0.04	0.04
20× 13	46	35	11	33	26.45	40	26	14	24	18.40	0.05	0.05
20× 16	48	35	13	33	26.45	45	30	15	29	22.40	0.05	0.05
25× 13	51	40	11	40	32.55	43	26	17	24	18.40	0.09	0.09
25× 16	53	40	13	40	32.55	48	30	18	29	22.40	0.10	0.10
25× 20	55	40	15	40	32.55	53	35	18	33	26.45	0.11	0.11
30× 13	55	44	11	46	38.60	46	26	20	24	18.40	0.12	0.12
30× 16	57	44	13	46	38.60	51	30	21	29	22.40	0.13	0.13
30× 20	59	44	15	46	38.60	56	35	21	33	26.45	0.14	0.14
30× 25	62	44	18	46	38.60	61	40	21	40	32.55	0.16	0.16
40× 13	66	55	11	57	48.70	52	26	26	24	18.40	0.19	0.19
40× 16	68	55	13	57	48.70	57	30	27	29	22.40	0.21	0.21
40× 20	70	55	15	57	48.70	62	35	27	33	26.45	0.22	0.22
40× 25	73	55	18	57	48.70	67	40	27	40	32.55	0.23	0.23
40× 30	76	55	21	57	48.70	71	44	27	46	38.60	0.23	0.23
50× 13	74	63	11	70	60.80	58	26	32	24	18.40	0.31	0.37
50× 16	76	63	13	70	60.80	63	30	33	29	22.40	0.34	0.40
50× 20	78	63	15	70	60.80	68	35	33	33	26.45	0.35	0.42
50× 25	81	63	18	70	60.80	73	40	33	40	32.55	0.36	0.43
50× 30	84	63	21	70	60.80	77	44	33	46	38.60	0.38	0.45
50× 40	90	63	27	70	60.80	88	55	33	57	48.70	0.45	0.54
65× 40	100	61	39	87	76.60	95	55	40	57	48.70	0.60	0.70
65× 50	101	61	40	87	76.60	104	63	41	70	60.80	0.70	0.82
75× 25	93	64	29	102	89.6	88	40	48	40	32.55	0.60	0.67
75× 40	100	64	36	102	89.6	102	55	47	57	48.70	0.85	0.94
75× 50	105	64	41	102	89.6	110	63	47	70	60.80	0.95	1.05
75× 65	113	64	49	102	89.6	117	61	56	87	76.60	1.10	1.21
100× 50	125	84	41	130	114.7	122	63	59	70	60.80	1.65	1.84
100× 75	140	84	56	130	114.7	132	64	68	102	89.60	1.85	2.06
125× 75	160	104	56	157	140.85	147	64	83	102	89.60	2.88	3.19
125×100	173	104	69	157	140.85	167	84	83	130	114.70	3.45	4.00
150× 75	195	132	63	186	166.0	158	64	94	102	89.60	4.20	5.00
150×100	208	132	76	186	166.0	182	84	98	130	114.70	5.00	5.90
150×125	217	132	85	186	166.0	201	104	97	157	140.85	5.20	6.10
200× 75	201	145	56	240	217.0	180	64	116	107.2	89.60	7.50	9.00
200×100	215	145	70	240	217.0	200	84	116	130	114.70	8.60	10.30
200×150	238	145	93	240	217.0	253	132	121	188	166.00	10.20	12.20
250× 75	226	155	71	295	268.2	210	64	146	108	89.60	11.80	14.10
250×100	246	155	91	295	268.2	225	84	141	136	114.70	13.10	15.20
250×200	304	155	149	295	268.2	310	145	165	245	217.00	17.20	20.60
300× 75	361	300	61	343	320.7	236	64	172	102	89.60	19.10	22.90

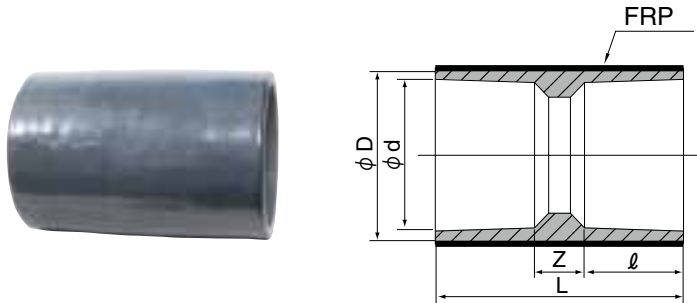
Notes: Size of 350 mm or over can also be manufactured. Please consult our nearest office.



## Socket

PRODUCT  
MODEL CODE

SU ▶ T F U SO J N Size  
GU ▶ T G U SO J N Size



Socket

### ■ Dimensions Table

(Unit: mm)

Size	L	ℓ	Z	D	d	Reference Weight (kg)	
						SU	GU
13	57	26	5	24	18.40	0.03	0.03
16	67	30	7	29	22.40	0.04	0.04
20	77	35	7	33	26.45	0.05	0.05
25	87	40	7	40	32.55	0.08	0.08
30	95	44	7	46	38.60	0.10	0.10
40	117	55	7	57	48.70	0.20	0.20
50	133	63	7	70	60.80	0.30	0.36
65	145	61	23	87	76.60	0.40	0.47

(Unit: mm)

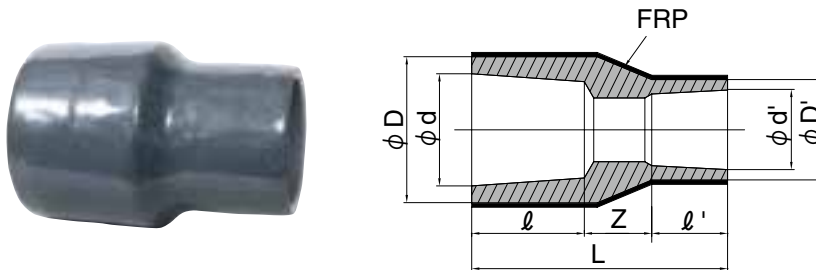
Size	L	ℓ	Z	D	d	Reference Weight (kg)	
						SU	GU
75	155	64	27	102	89.60	0.60	0.66
100	200	84	32	130	114.70	1.10	1.20
125	240	104	32	157	140.85	1.50	1.80
150	300	132	36	186	166.00	2.80	3.30
200	305	145	15	238	217.00	3.60	4.30
250	352	155	42	295	268.20	4.80	5.60
300	360	175	10	336	319.60	7.10	8.20

Notes: Size of 350 mm or over can also be manufactured. Please consult our nearest office.

## Reducing Socket

PRODUCT  
MODEL CODE

SU ▶ T F U SO J N Size  
GU ▶ T G U SO J N Size



Reducing Socket

### ■ Dimensions Table

(Unit: mm)

Size	L	ℓ	D	d	ℓ'	D'	d'	Z	Reference Weight (kg)	
									SU	GU
16x13	61	30	29	22.40	26	24	18.40	5	0.05	0.05
20x13	68	35	33	26.45	26	24	18.40	7	0.06	0.06
20x16	71	35	33	26.45	30	29	22.40	6	0.06	0.06
25x13	86	40	40	32.55	26	24	18.40	20	0.08	0.08
25x16	85	40	40	32.55	30	29	22.40	15	0.08	0.08
25x20	84	40	40	32.55	35	33	26.45	9	0.08	0.08
30x20	93	44	46	38.60	35	33	26.45	14	0.12	0.12
30x25	93	44	46	38.60	40	40	32.55	9	0.12	0.12
40x20	113	55	57	48.70	35	33	26.45	23	0.16	0.16
40x25	114	55	57	48.70	40	40	32.55	19	0.17	0.17
40x30	114	55	57	48.70	44	46	38.60	15	0.18	0.18
50x20	116	63	70	60.80	35	33	26.45	18	0.20	0.24
50x25	140	63	70	60.80	40	40	32.55	37	0.24	0.29

(Unit: mm)

Size	L	ℓ	D	d	ℓ'	D'	d'	Z	Reference Weight (kg)	
									SU	GU
50x 30	136	63	70	60.80	44	46	38.60	29	0.27	0.32
50x 40	136	63	70	60.80	55	57	48.70	18	0.28	0.33
65x 40	145	61	87	76.60	55	57	48.70	29	0.38	0.44
65x 50	149	61	87	76.60	63	70	60.80	25	0.40	0.47
75x 40	153	64	102	89.60	55	57	48.70	34	0.45	0.50
75x 50	165	64	102	89.60	63	70	60.80	38	0.50	0.55
75x 65	159	64	102	89.60	61	87	76.60	34	0.58	0.64
100x 75	190	84	130	114.70	64	102	89.60	42	0.86	0.96
125x100	229	104	157	140.85	84	130	114.70	41	1.40	1.55
150x100	295	132	186	166.00	84	130	114.70	79	2.40	2.82
150x125	272	132	186	166.00	104	157	140.85	36	2.50	2.93
200x150	356	145	240	217.00	132	188	166.00	79	5.40	6.36
250x200	380	155	292	268.20	145	240	217.00	80	9.40	11.00

Notes: Size of 350 mm or over can also be manufactured. Please consult our nearest office.

# PRODUCT MODEL CODE LIST

Type	Field	Model	Material	Standard	Size
<b>F</b>	<b>*</b>	<b>*</b>	<b>U</b>	<b>1</b>	<b>***</b>
...	...	...	...	...	...
F Flange	F SU G GU	T TS Flange Q Blind Flange	U U-PVC	1 JIS10K	013 13mm I 300 300mm

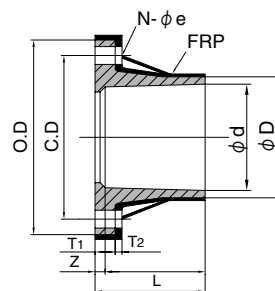
## TS Flange (JIS 10K Type)

PRODUCT  
MODEL CODE

SU ▶ F F T U 1 0 Size  
GU ▶ F G T U 1 0 Size

13 – 125 mm

150 – 300 mm



### Dimensions Table

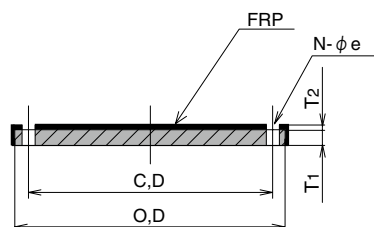
(Unit: mm)

Size	L	ℓ	Z	O.D	C.D	D	d	T <sub>1</sub>	T <sub>2</sub>		N-φ <sub>e</sub>	Reference Weight (kg)	
									SU	GU		SU	GU
13	30.0	26	4.0	90	65	25.5	18.40	14	2	2.0	4-15	0.13	0.13
15	35.0	30	5.0	95	70	31.0	22.40	14	5	5.0	4-15	0.19	0.19
20	40.0	35	5.0	100	75	35.0	26.45	15	5	5.0	4-15	0.24	0.24
25	46.0	40	6.0	125	90	42.5	32.55	15	5	5.0	4-19	0.38	0.38
30	50.5	44	6.5	135	100	48.5	38.60	16	5	5.0	4-19	0.45	0.45
40	61.5	55	6.5	140	105	60.5	48.70	16	6	6.0	4-19	0.53	0.53
50	71.0	63	8.0	155	120	73.0	60.80	20	8	8.0	4-19	0.81	0.81
65	70.0	61	9.0	175	140	90.0	76.60	22	8	8.0	4-19	1.10	1.10
75	73.0	64	9.0	185	150	105.0	89.60	22	8	8.0	8-19	1.20	1.20
100	93.0	84	9.0	210	175	131.0	114.7	22	10	10.0	8-19	1.70	1.70
125	114.0	104	10.0	250	210	158.0	140.85	24	12	12.0	8-23	2.70	2.70
150	142.0	132	10.0	280	240	185.0	166.0	26	2	3.5	8-23	2.80	3.40
200	156.0	145	11.0	330	290	238.0	217.0	28	2	3.5	12-23	3.90	4.60
250	167.0	155	12.0	400	355	289.0	268.2	30	2	3.5	12-25	5.60	6.60
300	167.0	155	12.0	445	400	341.0	318.7	30	2	4.3	16-25	7.50	9.00

Notes: Size of 350 mm or over and welding flange modification are also available. Please consult a near-by sales office.

## Blind Flange (JIS 10K Type)

PRODUCT  
MODEL CODE

SU ▶ F F Q U 1 0 Size  
GU ▶ F G Q U 1 0 Size


### Dimensions Table

(Unit: mm)

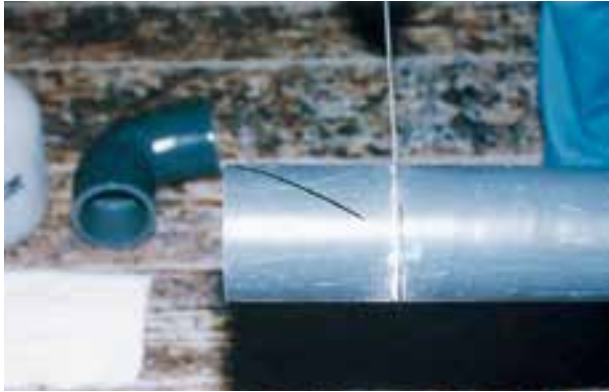
(Unit: mm)

Size	O.D	C.D	T <sub>1</sub>		T <sub>2</sub>		N-φ <sub>e</sub>	Reference Weight (kg)	
			SU	GU	SU	GU		SU	GU
13	90	65	12	12	2.5	3	4-15	0.14	0.15
15	95	70	12	12	2.5	3	4-15	0.16	0.17
20	100	75	14	14	2.5	3	4-15	0.20	0.21
25	125	90	14	14	2.5	3	4-19	0.31	0.32
30	135	100	16	16	2.5	3	4-19	0.41	0.43
40	140	105	16	16	2.5	3	4-19	0.45	0.46
50	155	120	16	16	2.5	3	4-19	0.55	0.57
65	175	140	18	18	2.5	3	4-19	0.78	0.81
75	185	150	18	18	2.5	3	8-19	0.84	0.87
100	210	175	18	18	2.5	5	8-19	1.10	1.27

Size	O.D	C.D	T <sub>1</sub>		T <sub>2</sub>		N-φ <sub>e</sub>	Reference Weight (kg)	
			SU	GU	SU	GU		SU	GU
125	250	210	20	20	3.0	6	8-23	1.75	2.02
150	280	240	22	22	4.0	8	8-23	2.52	2.99
200	330	290	22	22	5.0	10	12-23	3.64	4.45
250	400	355	24	24	7.0	13	12-25	6.26	7.70
300	445	400	24	24	9.0	15	16-25	8.30	10.50
350	490	445	25	20	13.0	25	16-25	12.00	15.00
400	560	510	25	20	13.0	25	16-27	16.00	19.50
450	620	565	25	20	13.0	25	20-27	19.00	24.00
500	675	620	25	20	15.0	25	20-27	24.50	28.50
600	795	730	30	20	15.0	30	24-33	37.00	43.50



### Installation Procedure



- 1** After cutting the pipe with specified length, put a gauge line along the perimeter of the pipe and put incision in the circumference direction spirally with a saw, etc.



- 2** Heat evenly by a propane gas burner.



- 3** Pinch the FRP layer with pliers, etc. and peel it off.



- 4** Finish the FRP peeled part with a sand paper, etc., chamfer the tip 45°, and apply adhesive evenly on the connection part of pipe and fitting.



- 5** Insert into fitting using a lever block, etc.



- 6** Remove the protruded adhesive from the connection end and weld.



- 7** After applying primer, fill the area where it has a level difference in joints and the corner part with the mixture made by adding and mixing the hardener with the volume ratio of 1 to 2% against Q Coat Putty little by little, and then finish smoothly using a spatula.

### ■ Mixing Ratio and Curing Time

(Volume ratio against polyester resin 100)

Outside Temperature	Hardener	
	1%	2%
10°C	48 minutes	15 minutes
20°C	22 minutes	–
30°C	9 minutes	–



- 8** Add hardener to polyester resin and apply it on the connection part with a brush or roller to impregnate the polyester resin into the glass fibers to build specified lamination.

## Piping Support Procedure

### ■ Support Intervals

Install supports on the straight part by referring to the intervals in the following table.

#### SU type

(Unit: m)

Size Temperature	13 – 25 mm	30 – 50 mm	65 – 100 mm	125 – 150 mm	200 – 250 mm	300 – 400 mm	450 – 500 mm	600mm
20°C	1.0	1.5	2.0	2.25	2.5	2.75	3.0	3.5
60°C	1.0	1.25	1.5	1.75	2.0	2.25	2.5	2.75
90°C	1.0	1.25	1.25	1.5	1.75	1.75	2.0	2.0

#### GU Type

(Unit: m)

Size Temperature	13 – 25 mm	30 – 40 mm	50 – 65 mm	75 – 125 mm	150 – 250 mm	300 – 350 mm	400 – 500 mm	600mm
20°C	1.0	1.5	2.0	2.25	2.75	2.75	3.0	3.5
60°C	1.0	1.25	1.75	2.0	2.5	2.5	2.75	3.25
95°C	1.0	1.25	1.5	1.75	2.0	2.0	2.75	3.0

For supporting the bending parts and other areas, refer to the separate Technical Document "ASAHI **AV**® AV Pipe Installation Procedure (AV-T-018-J)."

## Maintenance Materials for AV Pipe Installation

Product Name			Use	Shipment Unit
AV Cement No.88 (Size of 150 mm or less) AV Cement No.62 (Size of 200 mm or more)			Connects PVC pipe with FRP removed and fitting.	250 g/can 500 g/can 1 kg (No.62)
Welding rod (φ3, φ4)			Welds the small end of bonded pipe fitting.	1 kg/box
Primer (UA solution, UB solution)			Enhances the bonding of PVC and FRP.	500 g/can
Q Coat Putty			Fills a level difference between pipe and fitting and enhances the strength of connected/welded part.	1kg/can
Polyester resin			Impregnates resin to glass fibers when laminating them on the top layer of connected pipe fitting.	500 g/can
Hardener			Hardens Q Coat Putty and polyester resin.	500 g/can
Glass fibers	SU type	Glass Cloth (GC)	Laminates on the top layer of connected pipe/fitting for reinforcement. (Type of glass fibers differs by size.)	m/lap
		Surface Cloth (SC)		
	GU Type	Glass Cloth (GC)		
		Mat (M)		
		Roving Cloth (WR)		
		Surface Cloth (SC)		
Accelerator (Required when installing at overseas.)			Accelerates hardening.	1kg/can
Acetone			Cleans the connection part.	500 g/can

Maintenance materials above are required for AV pipe field installation. Maintenance materials are for AV pipe only.

Do not use them for other purposes. For required quantity of maintenance materials, please consult our nearest office.

## Precautions for Storing and Handling of Maintenance Materials

### 1) Precautions for storage

Be cautious in storage as maintenance materials contain hazardous materials. Display of the hazardous materials and avoid flammables.

### 2) Precautions for handling

- ① Never mix hardener and accelerator directly as it could cause an explosive reaction and create an extremely dangerous condition.
- ② Never put polyester resin, accelerator, hardener, primer, Q Coat Putty, acetone and adhesive close to fire as they are flammable.
- ③ Wear protection gloves, protection glasses and organic gas mask when working.
- ④ Do not apply an excessive impact to hardener.
- ⑤ After using maintenance materials, put a lid and store in a hazardous material storage place.
- ⑥ For used containers, punch a hole at the bottom of the container and dispose according to the local disposal standard.
- ⑦ If maintenance materials catch a fire, distinguish by using powder and carbon dioxide fire extinguisher.
- ⑧ If polyester resin, accelerator, hardener, primer, acetone or adhesive leaks, absorb it using an absorber and wipe off with a cloth immediately.
- ⑨ When handling maintenance materials excluding welding rod, never touch or pull with bare hands.
- ⑩ If toxic conditions caused by maintenance materials are seen, lay in a breezy area with the head lower than the legs and consult a doctor immediately.
- ⑪ In case of contacting with the eyes by mistake, rinse the eyes with clean water immediately for more than 30 minutes and consult a doctor immediately.

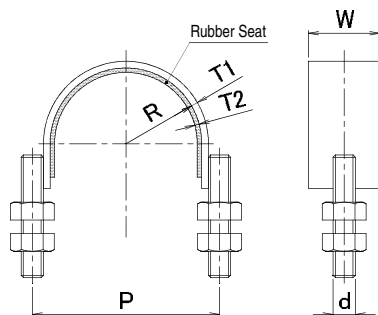
## Piping Support Hardware

Be cautious of the following points when providing support to piping.

- Use a type that can bear the total weight of pipe, fluid inside the pipe and heat insulator.
- Be fully cautious about excessive tightening that could flatten piping.
- For support hardware to be used for piping fixation, use the following support hardware and make sure to provide a buffer with a rubber seat, etc.

Size	Support Hardware to be Used
30 mm or less	U-bolt, U-band
40 – 125 mm	U-band
150mm or more	U Band with Pipe Lower Support Saddle

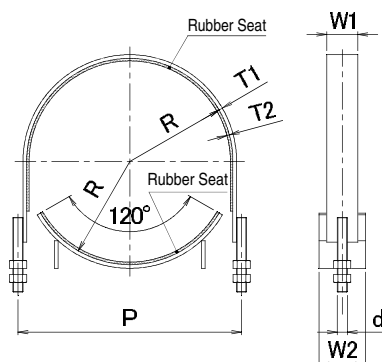
### ① Piping U-Band 40 – 125 mm



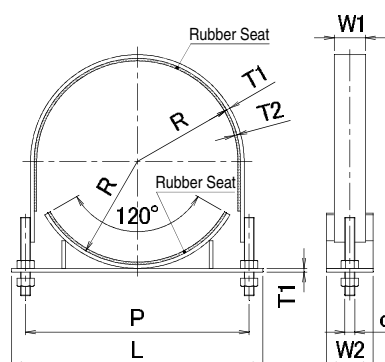
Size (mm)	SU						GU					
	d	R	P	W	T <sub>1</sub>	T <sub>2</sub>	d	R	P	W	T <sub>1</sub>	T <sub>2</sub>
40	M10	28	72	32	3	2	M10	28	72	32	3	2
50	M10	34	84	32	3	2	M10	36	88	32	3	2
65	M10	42	100	32	3	2	M10	44	104	32	3	2
75	M10	49	114	32	3	2	M10	51	118	32	3	2
100	M12	62	145	32	4.5	3	M12	64	149	32	4.5	3
125	M12	76	173	32	4.5	3	M12	77	175	32	4.5	3

For fitting materials, refer to the separate Technical Document "ASAHI AV Pipe Installation Procedure (AV-T-018-J)."

### ② Piping U-Band 150 – 300 mm



Saddle Weld Installation Type



Saddle Bolt Installation Type

Size (mm)	SU								GU							
	d	R	P	L	W <sub>1</sub>	W <sub>2</sub>	T <sub>1</sub>	T <sub>2</sub>	d	R	P	L	W <sub>1</sub>	W <sub>2</sub>	T <sub>1</sub>	T <sub>2</sub>
150	M12	89	199	250	38	50	4.5	3	M12	91	203	250	38	50	4.5	3
200	M12	114	249	300	38	50	4.5	3	M12	117	255	310	38	50	4.5	3
250	M12	140	301	350	38	50	4.5	3	M12	142	305	360	38	50	4.5	3
300	M16	166	360	410	50	75	6	4	M16	169	366	420	50	75	6	4

For fitting materials, refer to the separate Technical Document "ASAHI AV Pipe Installation Procedure (AV-T-018-J)."