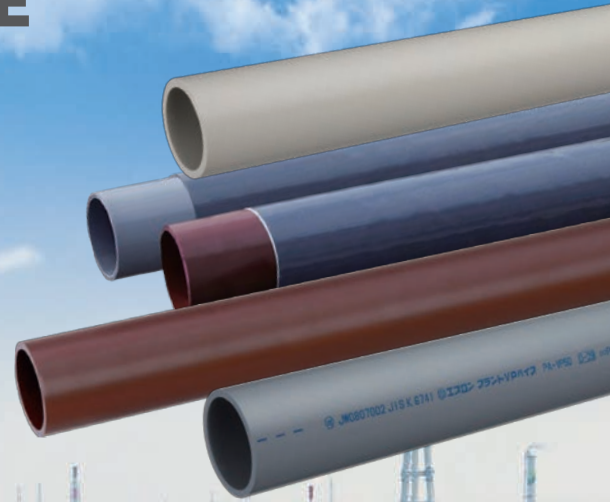


Industrial Piping Systems

# ESLON™ PLANT PIPE MATERIALS CATALOGUE



**Sekisui Chemical's plastic plant pipe boasts excellent resistance to corrosion and chemicals. We offer a wide selection to achieve highly reliable pipe lines.**





P.03

**FOR CHEMICAL  
RESISTANCE**  
●  
**ESLON™  
PLANT VP PIPE**



P.17

**FOR PRESSURE  
RESISTANCE**  
●  
**ESLON™  
VPFW • HTFW**



P.35

**FOR WEATHER  
RESISTANCE**  
●  
**ESLON™  
UVS-VP**

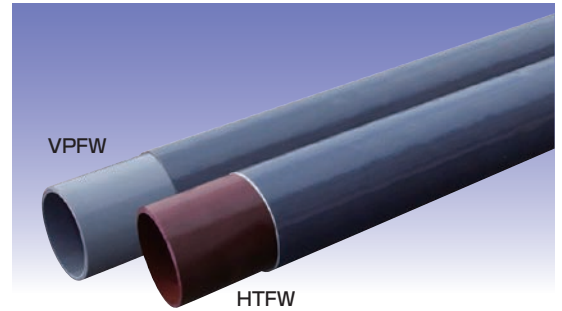


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# ESLON™ VPFW·HTFW

- The outside of the PVC pipe is reinforced with FRP, making for a highly pressure and heat resistant pipe.
- ST and EX type available depending on usage pressure and temperature. (Shared Across 16-40A)
- VPFW uses 16-300A Plant VP Pipe for high resistance against chemicals and corrosion. 350-600A uses ESLON Pipe VU.
- HTFW PVC uses Plant CPVC Pipe, which is highly resistant to corrosion and chemicals. HT comes in two types, T-17 and P-10 depending on the chemical. (Standard type: T-17)
- Lightweight and easy to handle compared to metal pipes.



## VPFW/HTFW Applications

- **Plant Piping**  
Soda, plating, steel soaking, nonferrous refining, fiber, paper, pulp, compost, pharmaceuticals, foods, various chemicals, other chemical industrial fields
- **Marine Piping**  
Aquaculture, experimental stations for fisheries, laboratories, salt production, desalination plants, seawater transport such as seawater cooling for power plants and aquariums, etc.

### Recommended solvent cements

NO.110



\*16-50A can also be used with the following.

NO.100S



\*Refer to page 60 to confirm usability with other solvent cements.

## VPFW-ST Type (16-600A)

Maximum Working Temperature: 90°C  
PVC + FRP Reinforced Standard Pipe

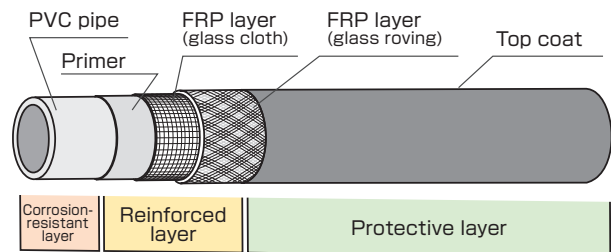
## VPFW-EX Type (16-600A)

Maximum Working Temperature: 95°C  
FRP layer is further reinforced for rigidity and high-pressure.

## HTFW (16-300A)

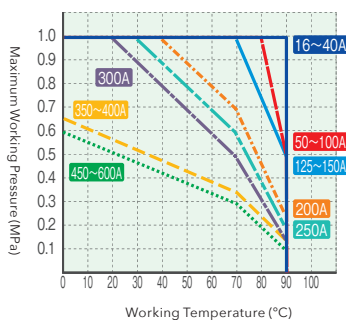
Maximum Working Temperature: 100°C  
High temperature resistance performs excellently with chlorine gas and other electrolytic lines.

## VPFW/HTFW Pipe Structure

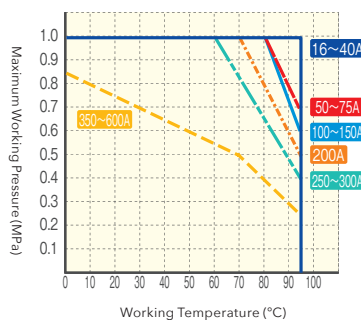


## Working Pressure for VPFW/HTFW Types

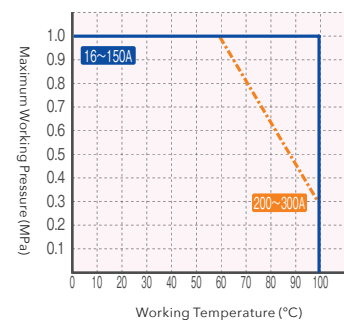
### ● VPFW-ST Type Maximum Working Temperature: 90°C



### ● VPFW-EX Type Maximum Working Temperature: 95°C



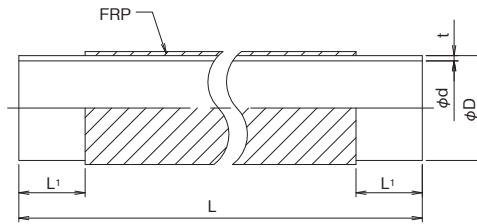
### ● HTFW Maximum Working Temperature: 100°C



VPFW SPECIFICATIONS

VPFW PIPE

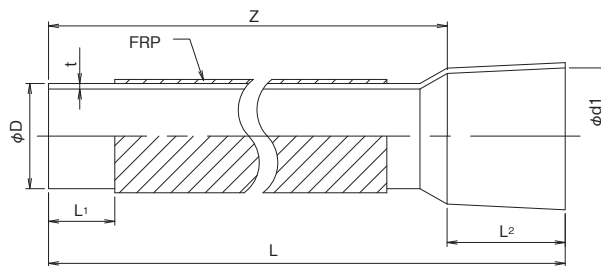
Pipe



Unit:mm

Size	φD	φd	t	L1	L	Weight (kg/m)		Item No.	
						ST	EX	ST	EX
16	22±0.2	16	2.7	40+10/-0	4000±10	0.45		FWV164E	
20	26±0.2	20	2.7	45+10/-0		0.55		FWV204E	
25	32±0.2	25	3.1	50+10/-0		0.75		FWV254E	
30	38±0.2	31	3.1	55+10/-0		0.80		FWV304E	
40	48±0.2	40	3.6	65+10/-0		1.20		FWV404E	
50	60±0.2	51	4.1	75+10/-0		1.60	1.85	FWV504S	FWV504E
65	76±0.3	67	4.1	75+10/-0		2.00	2.38	FWV654S	FWV654E
75	89±0.3	77	5.5	80+10/-0		2.95	3.35	FWV754S	FWV754E
100	114±0.4	100	6.6	100+10/-0		4.25	4.88	FWV1H4S	FWV1H4E
125	140±0.5	125	7.0	120+10/-0		5.63	6.33	FWV1Q4S	FWV1Q4E
150	165±0.5	146	8.9	150+10/-0		7.98	10.45	FWV1F4S	FWV1F4E
200	216±0.7	194	10.3	175+10/-5		12.00	14.98	FWV2H4S	FWV2H4E
250	267±0.9	240	12.7	205+10/-5		17.90	21.55	FWV2F4S	FWV2F4E
300	318±1.0	286	15.1	220+10/-5		24.83	29.40	FWV3H4S	FWV3H4E
350	370±1.2	348	10.5	270+10/-5		20.25	22.93	FWV3FA	FWV3FB
400	420±1.3	395	11.8	320+10/-5		25.50	29.50	FWV4HA	FWV4HB
450	470±1.5	442	13.2	370+10/-5		31.50	36.50	FWV4FA	FWV4FB
500	520±1.6	489	14.6	370+15/-5		38.25	46.00	FWV5HA	FWV5HB
600	630±3.2	592	17.8	420+15/-5		56.00	66.00	FWV6HA	FWV6HB

One sleeve end pipe

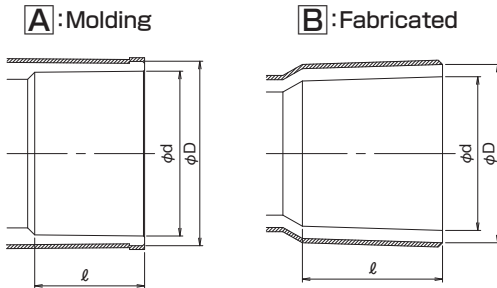


Unit:mm

Size	φD	φd1	t	L1	L2	Z	L	Weight (kg/pc)		Item No.	
								ST	EX	ST	EX
16	22±0.2	22.11±0.20	2.7	40+10/-0	20+4/-0.5	3970	3990±20	1.8		FWV16SE	
20	26±0.2	26.11±0.20	2.7	45+10/-0	24+4/-0.5	3966	3990±20	2.2		FWV20SE	
25	32±0.2	32.16±0.25	3.1	50+10/-0	27+4/-0.5	3963	3990±20	3.0		FWV25SE	
30	38±0.2	38.17±0.25	3.1	55+10/-0	30+4/-0.5	3955	3985±20	3.2		FWV30SE	
40	48±0.2	48.20±0.30	3.6	65+10/-0	37+4/-0.5	3948	3985±20	4.8		FWV40SE	
50	60±0.2	60.45±0.30	4.1	75+10/-0	50+4/-0.5	3935	3985±20	6.4	7.4	FWV50SS	FWV50SE
65	76±0.3	76.37±0.30	4.1	75+10/-0	50+4/-0.5	3935	3985±20	8.0	9.5	FWV65SS	FWV65SE
75	89±0.3	89.31±0.30	5.5	80+10/-0	50+4/-0.5	3935	3985±20	11.8	13.4	FWV75SS	FWV75SE
100	114±0.4	114.29±0.30	6.6	100+10/-0	61+4/-0.5	3919	3980±20	17.0	19.5	FWV1HSS	FWV1HSE
125	140±0.5	140.35±0.35	7.0	120+10/-0	75+4/-0.5	3905	3980±20	22.5	25.3	FWV1QSS	FWV1QSE
150	165±0.5	165.41±0.40	8.9	150+10/-0	95+4/-0.5	3885	3980±20	31.9	41.8	FWV1FSS	FWV1FSE
200	216±0.7	217.40±0.60	10.3	175+10/-5	155±5	3820	3975±30	48.0	59.9	FWV2HSS	FWV2HSE
250	267±0.9	268.60±0.60	12.7	205+10/-5	185±5	3790	3975±30	71.6	86.2	FWV2FSS	FWV2FSE
300	318±1.0	319.00±0.70	15.1	220+10/-5	185±5	3790	3975±30	99.3	117.6	FWV3HSS	FWV3HSE

## VPFW Fitting

### Socket Dimension



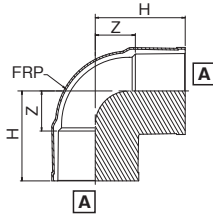
**A: Molding** Unit:mm

Size	φ D	φ d	ℓ
16	29	22.40±0.20	30
20	33	26.45±0.20	35
25	40	32.55±0.25	40
30	46	38.60±0.25	44
40	57	48.70±0.30	55
50	70	60.80±0.30	63
65	87	76.60±0.30	61
75	102	89.60±0.30	64
100	130	114.70±0.30	84
125	157	140.85±0.35	104
150	186	166.00±0.40	132
200	243	217.40±0.70	145
250	300	268.60±0.70	175
300	356	319.80±0.80	185

**B: Fabricated** Unit:mm

Size	φ D	φ d	ℓ
16	29	22.40±0.20	30
20	33	26.45±0.20	35
25	40	32.55±0.25	40
30	46	38.60±0.25	44
40	57	48.70±0.30	55
50	70	60.80±0.30	63
65	87	76.60±0.30	61
75	102	89.60±0.30	64
100	130	114.70±0.30	84
125	157	140.85±0.35	104
150	186	166.00±0.40	132
200	243	217.40±0.70	145
250	300	268.60±0.70	175
300	356	319.80±0.80	185
350	391	372.00±0.70	250
400	444	422.30±0.80	300
450	497	472.60±0.90	350
500	550	522.80±0.90	350
600	667	633.20±1.10	400

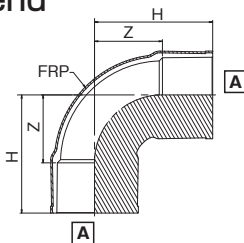
### 90° Elbow



Unit:mm

Size	H	Z	Weight (kg/pc)		Item No.		Socket Dimension
			ST	EX	ST	EX	
16	43	13	0.09		FTL16		A-A
20	50	15	0.12		FTL20		A-A
25	58	18	0.15		FTL25		A-A
30	65	21	0.20		FTL30		A-A
40	82	27	0.31		FTL40		A-A
50	96	33	0.53	0.53	FTL50	FTL50E	A-A
65	110	49	0.86	0.86	FTL65	FTL65E	A-A
75	120	56	1.29	1.29	FTL75	FTL75E	A-A
100	155	71	2.39	2.39	FTL1H	FTL1HE	A-A
125	187	83	4.26	4.26	FTL1Q	FTL1QE	A-A
150	230	98	7.06	7.06	FTL1F	FTL1FE	A-A
200	262	117	10.77	10.77	FTL2H	FTL2HE	A-A
250	318	143	17.39	17.39	FTL2F	FTL2FE	A-A
300	355	170	25.20	25.20	FTL3H	FTL3HE	A-A

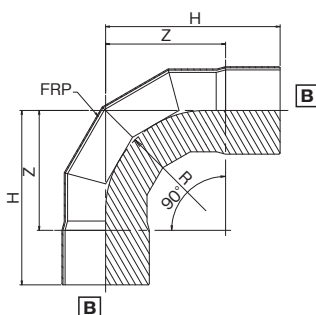
### 90° Bend



Unit:mm

Size	H	Z	Weight (kg/pc)		Item No.		Socket Dimension
			ST	EX	ST	EX	
200	341	196	7.9	10.1	FVL2HA	FVL2HB	A-A
250	428	253	13.2	15.5	FVL2FA	FVL2FB	A-A
300	441	256	15.0	17.7	FVL3HA	FVL3HB	A-A

### 90° Miter Bend

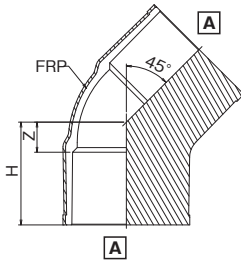


Unit:mm

Size	H	Z	R	Weight (kg/pc)		Item No.		Socket Dimension
				ST	EX	ST	EX	
350	800	550	460	38	40	FVL3FA	FVL3FB	B-B
400	900	600	510	53	56	FVL4HA	FVL4HB	B-B
450	970	620	530	72	76	FVL4FA	FVL4FB	B-B
500	1030	680	560	87	92	FVL5HA	FVL5HB	B-B
600	1170	770	660	146	154	FVL6HA	FVL6HB	B-B

45° Elbow

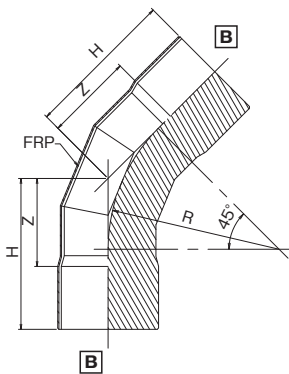
Unit:mm



Size	H	Z	Weight (kg/pc)		Item No.		Socket Dimension
			ST	EX	ST	EX	
20	44	9	0.1		F4L20		A-A
25	51	11	0.1		F4L25		A-A
30	56	12	0.1		F4L30		A-A
40	69	14	0.3		F4L40		A-A
50	81	18	0.3	0.3	F4L50	F4L50E	A-A
65	94	33	0.7	0.7	F4L65	F4L65E	A-A
75	98	34	0.8	0.8	F4L75	F4L75E	A-A
100	123	39	1.5	1.5	F4L1H	F4L1HE	A-A
125	149	44	2.7	2.7	F4L1Q	F4L1QE	A-A
150	184	51	4.5	4.5	F4L1F	F4L1FE	A-A
200	205	60	8.2	8.2	F4L2HA	F4L2HB	A-A
250	254	79	13.9	13.9	F4L2FA	F4L2FB	A-A
300	280	95	20.8	20.8	F4L3HA	F4L3HB	A-A

45° Miter Bend

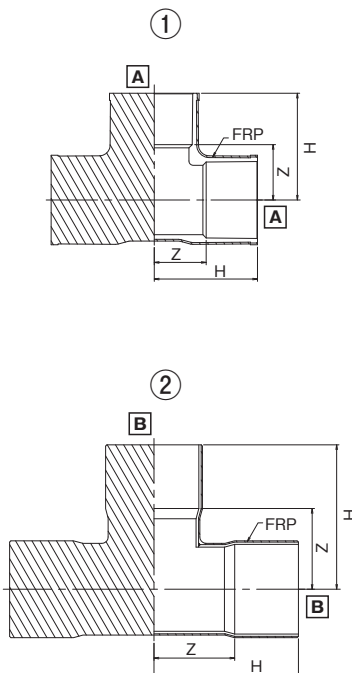
Unit:mm



Size	H	Z	R	Weight (kg/pc)		Item No.		Socket Dimension
				ST	EX	ST	EX	
350	600	350	680	32	34	F4L3FA	F4L3FB	B-B
400	670	370	740	46	48	F4L4HA	F4L4HB	B-B
450	750	400	800	63	66	F4L4FA	F4L4FB	B-B
500	790	440	860	67	71	F4L5HA	F4L5HB	B-B
600	880	480	980	124	130	F4L6HA	F4L6HB	B-B

Tee

Unit:mm



Size	H	Z	Weight (kg/pc)		Item No.		Socket Dimension	Drawing No.
			ST	EX	ST	EX		
16	43	13	0.12		FTT16		A-A	①
20	50	15	0.15		FTT20		A-A	①
25	58	18	0.19		FTT25		A-A	①
30	65	21	0.23		FTT30		A-A	①
40	82	27	0.41		FTT40		A-A	①
50	96	34	0.73	0.73	FTT50	FTT50E	A-A	①
65	110	49	1.15	1.15	FTT65	FTT65E	A-A	①
75	120	56	1.73	1.73	FTT75	FTT75E	A-A	①
100	152	68	3.33	3.33	FTT1H	FTT1HE	A-A	①
125	187	83	5.97	5.97	FTT1Q	FTT1QE	A-A	①
150	230	98	9.57	9.57	FTT1F	FTT1FE	A-A	①
200	267	122	8.8	11.2	FVT2HA	FVT2HB	A-A	①
250	355	180	14.1	16.2	FVT2FA	FVT2FB	A-A	①
300	410	225	17.6	21.1	FVT3HA	FVT3HB	A-A	①
350	600	350	45.0	48.0	FVT3FA	FVT3FB	B-B	②
400	680	380	64.0	67.0	FVT4HA	FVT4HB	B-B	②
450	760	410	83.0	88.0	FVT4FA	FVT4FB	B-B	②
500	810	460	85.0	90.0	FVT5HA	FVT5HB	B-B	②
600	930	530	140.0	148.0	FVT6HA	FVT6HB	B-B	②

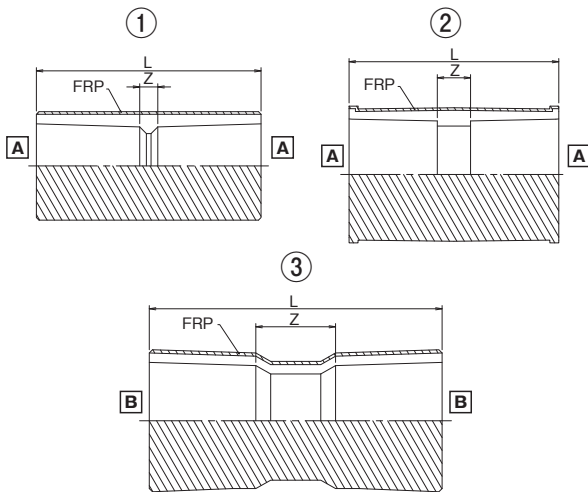






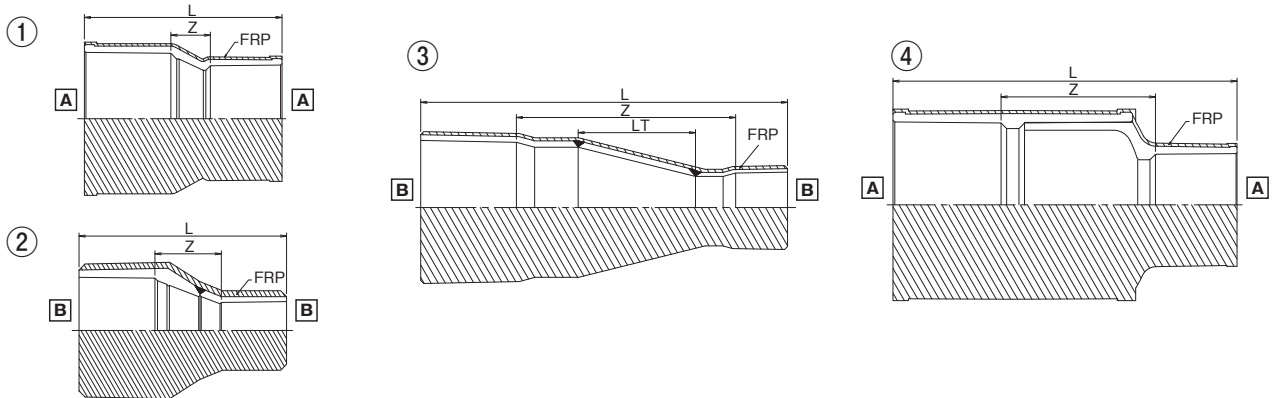
### Coupling

Unit:mm



Size	L	Z	Weight (kg/pc)		Item No.		Socket Dimension	Drawing No.
			ST	EX	ST	EX		
16	67	7	0.07		FTS16		A-A	①
20	77	7	0.09		FTS20		A-A	①
25	87	7	0.11		FTS25		A-A	①
30	95	7	0.14		FTS30		A-A	①
40	117	7	0.23		FTS40		A-A	①
50	133	7	0.31	0.31	FTS50	FTS50E	A-A	①
65	145	23	0.51	0.51	FTS65	FTS65E	A-A	②
75	155	27	0.73	0.73	FTS75	FTS75E	A-A	②
100	200	32	1.47	1.47	FTS1H	FTS1HE	A-A	②
125	240	32	2.66	2.66	FTS1Q	FTS1QE	A-A	②
150	300	36	4.32	4.32	FTS1F	FTS1FE	A-A	②
200	300	10	4.00	5.00	FVS2HA	FVS2HB	A-A	②
250	384	34	6.00	7.00	FVS2FA	FVS2FB	A-A	②
300	408	38	7.70	9.00	FVS3HA	FVS3HB	A-A	②
350	610	110	17.00	18.00	FVS3FA	FVS3FB	B-B	③
400	720	120	24.00	26.00	FVS4HA	FVS4HB	B-B	③
450	830	130	32.00	34.00	FVS4FA	FVS4FB	B-B	③
500	830	130	36.00	38.00	FVS5HA	FVS5HB	B-B	③
600	930	130	59.00	62.00	FVS6HA	FVS6HB	B-B	③

### Reducing Coupling



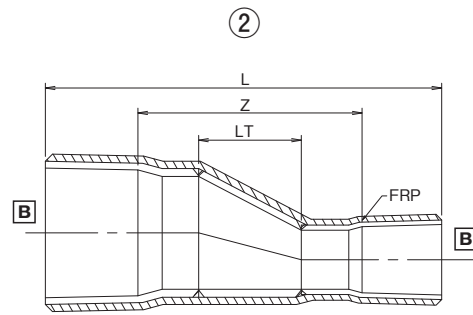
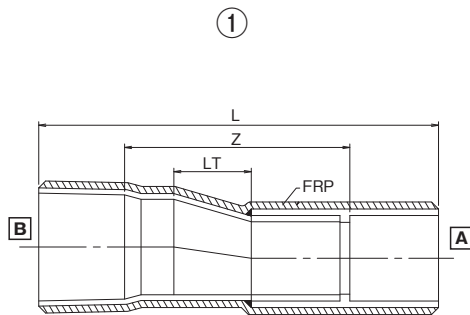
Unit:mm

Unit:mm

Size	L	Z	LT	Weight (kg/pc)		Item No.		Socket Dimension	Drawing No.
				ST	EX	ST	EX		
20×16	71	6	-	0.11		FTS201		A-A	①
25×16	85	15	-	0.10		FTS252		A-A	①
25×20	84	9	-	0.11		FTS251		A-A	①
30×16	94	20	-	0.11		FTS303		B-B	②
30×20	93	14	-	0.14		FTS302		A-A	①
30×25	93	9	-	0.11		FTS301		A-A	①
40×16	114	29	-	0.15		FTS405		B-B	②
40×20	113	23	-	0.23		FTS404		A-A	①
40×25	114	19	-	0.20		FTS403		A-A	①
40×30	114	15	-	0.19		FTS402		A-A	①
50×20	116	18	-	0.25	0.25	FTS505	FTS505E	A-A	①
50×25	140	37	-	0.29	0.29	FTS504	FTS504E	A-A	①
50×30	136	29	-	0.26	0.26	FTS503	FTS503E	A-A	①
50×40	136	18	-	0.31	0.31	FTS501	FTS501E	A-A	①
65×25	163	62	-	0.40	0.40	FTS654	FTS654E	B-B	②
65×30	159	54	-	0.45	0.45	FTS653	FTS653E	B-B	②
65×40	159	43	-	0.65	0.65	FTS652	FTS652E	B-B	②
65×50	149	25	-	0.53	0.53	FTS651	FTS651E	A-A	①
75×30	175	67	-	0.60	0.60	FTS754	FTS754E	B-B	②
75×40	175	56	-	0.65	0.65	FTS753	FTS753E	B-B	②
75×50	165	38	-	0.71	0.71	FTS752	FTS752E	A-A	①
75×65	159	34	-	0.72	0.72	FTS751	FTS751E	A-A	①
100×40	237	98	-	0.80	0.80	FTS1H4	FTS1H4E	B-B	②
100×50	227	80	-	0.95	0.95	FTS1H3	FTS1H3E	B-B	②
100×65	221	76	-	1.10	1.10	FTS1H2	FTS1H2E	B-B	②
100×75	190	42	-	1.26	1.26	FTS1H1	FTS1H1E	A-A	①
125×50	288	121	-	1.50	1.50	FTS1Q4	FTS1Q4E	B-B	②
125×65	282	117	-	1.80	1.80	FTS1Q3	FTS1Q3E	B-B	②
125×75	251	83	-	2.00	2.00	FTS1Q2	FTS1Q2E	B-B	②
125×100	229	41	-	2.13	2.13	FTS1Q1	FTS1Q1E	A-A	①
150×65	348	155	-	3.10	3.10	FTS1F4	FTS1F4E	B-B	②
150×75	317	121	-	3.30	3.30	FTS1F3	FTS1F3E	B-B	②
150×100	295	79	-	3.57	3.57	FTS1F2	FTS1F2E	A-A	①

Size	L	Z	LT	Weight (kg/pc)		Item No.		Socket Dimension	Drawing No.
				ST	EX	ST	EX		
150×125	272	36	-	3.61	3.61	FTS1F1	FTS1F1E	A-A	①
200×75	609	390	237	11.5	13.5	FVS2H4A	FVS2H4B	B-B	③
200×100	594	355	190	10.5	11.5	FVS2H3A	FVS2H3B	B-B	③
200×125	574	315	142	9.5	11.5	FVS2H2A	FVS2H2B	B-B	③
200×150	368	91	-	7.5	8.5	FVS2H1A	FVS2H1B	A-A	①
250×100	734	465	286	20.5	22.5	FVS2F4A	FVS2F4B	B-B	③
250×125	714	425	237	17.5	20.5	FVS2F3A	FVS2F3B	B-B	③
250×150	557	250	-	15.5	17.5	FVS2F2A	FVS2F2B	A-A	④
250×200	400	80	-	14.5	15.5	FVS2F1A	FVS2F1B	A-A	①
300×125	824	535	332	32.5	35.5	FVS3H4A	FVS3H4B	B-B	③
300×150	605	288	-	28.5	31.5	FVS3H3A	FVS3H3B	A-A	④
300×200	601	271	-	25.5	28.5	FVS3H2A	FVS3H2B	A-A	④
300×250	435	75	-	22.5	25.5	FVS3H1A	FVS3H1B	A-A	①
350×150	992	610	383	33.5	36.5	FVS3F4A	FVS3F4B	B-B	③
350×200	945	540	287	30.5	33.5	FVS3F3A	FVS3F3B	B-B	③
350×250	895	460	192	27.5	30.5	FVS3F2A	FVS3F2B	B-B	③
350×300	820	385	97	25.0	27.5	FVS3F1A	FVS3F1B	B-B	③
400×200	1105	650	381	23.5	23.5	FVS4H4A	FVS4H4B	B-B	③
400×250	1055	570	286	28.7	28.7	FVS4H3A	FVS4H3B	B-B	③
400×300	980	495	190	33.7	33.7	FVS4H2A	FVS4H2B	B-B	③
400×350	970	420	93	36.5	36.5	FVS4H1A	FVS4H1B	B-B	③
450×250	1205	670	379	34.5	34.5	FVS4F4A	FVS4F4B	B-B	③
450×300	1125	590	284	40.4	40.4	FVS4F3A	FVS4F3B	B-B	③
450×350	1120	520	187	44.8	44.8	FVS4F2A	FVS4F2B	B-B	③
450×400	1095	445	93	52.0	52.0	FVS4F1A	FVS4F1B	B-B	③
500×300	1235	700	377	44.1	44.1	FVS5H4A	FVS5H4B	B-B	③
500×350	1220	620	280	49.1	49.1	FVS5H3A	FVS5H3B	B-B	③
500×400	1200	550	187	57.4	57.4	FVS5H2A	FVS5H2B	B-B	③
500×450	1165	465	93	66.3	66.3	FVS5H1A	FVS5H1B	B-B	③
600×350	1485	835	485	73.4	73.4	FVS6H4A	FVS6H4B	B-B	③
600×400	1470	770	392	84.0	84.0	FVS6H3A	FVS6H3B	B-B	③
600×450	1425	675	299	94.2	94.2	FVS6H2A	FVS6H2B	B-B	③
600×500	1350	600	205	103.8	103.8	FVS6H1A	FVS6H1B	B-B	③

## Eccentric Reducer



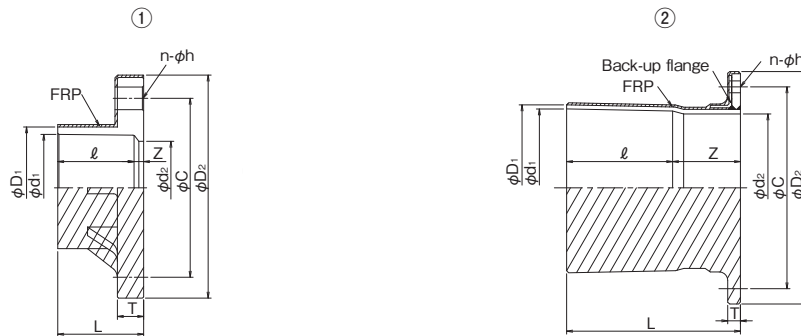
Unit:mm

Size	L	Z	LT	Weight (kg/pc)		Item No.		Socket Dimension	Drawing No.
				ST	EX	ST	EX		
20×16	120	55	15	0.1		FTE201		A-B	①
25×16	145	75	37	0.1		FTE252		A-B	①
25×20	140	65	22	0.1		FTE251		A-B	①
30×20	164	85	44	0.2		FTE302		A-B	①
30×25	154	70	22	0.2		FTE301		A-B	①
40×16	185	100	45	0.2		FTE404		B-B	②
40×20	185	95	38	0.2		FTE403		B-B	②
40×25	204	109	59	0.3		FTE402		A-B	①
40×30	184	85	37	0.3		FTE401		A-B	①
50×20	218	120	59	0.3	0.3	FTE504	FTE504E	B-B	②
50×25	218	115	49	0.3	0.3	FTE503	FTE503E	B-B	②
50×30	242	135	81	0.5	0.5	FTE502	FTE502E	A-B	①
50×40	223	105	44	0.6	0.6	FTE501	FTE501E	A-B	①
65×25	246	145	76	0.6	0.6	FTE654	FTE654E	B-B	②
65×30	245	140	66	0.6	0.6	FTE653	FTE653E	B-B	②
65×40	281	165	103	0.8	0.8	FTE652	FTE652E	A-B	①
65×50	249	125	55	0.9	0.9	FTE651	FTE651E	A-B	①
75×30	278	170	88	0.9	0.9	FTE754	FTE754E	B-B	②
75×40	274	155	71	0.9	0.9	FTE753	FTE753E	B-B	②
75×50	307	180	110	1.3	1.3	FTE752	FTE752E	A-B	①
75×65	255	130	47	1.2	1.2	FTE751	FTE751E	A-B	①
100×40	344	205	114	1.5	1.5	FTE1H4	FTE1H4E	B-B	②
100×50	337	190	94	1.6	1.6	FTE1H3	FTE1H3E	B-B	②
100×65	375	230	139	2.2	2.2	FTE1H2	FTE1H2E	A-B	①
100×75	338	190	91	2.2	2.2	FTE1H1	FTE1H1E	A-B	①
125×50	412	245	139	2.8	2.8	FTE1Q4	FTE1Q4E	B-B	②
125×65	385	220	111	3.0	3.0	FTE1Q3	FTE1Q3E	B-B	②
125×75	458	290	188	4.1	4.1	FTE1Q2	FTE1Q2E	A-B	①
125×100	403	215	95	4.3	4.3	FTE1Q1	FTE1Q1E	A-B	①
150×65	468	275	154	4.3	4.3	FTE1F4	FTE1F4E	B-B	②
150×75	456	260	132	4.7	4.7	FTE1F3	FTE1F3E	B-B	②
150×100	526	310	188	6.4	6.4	FTE1F2	FTE1F2E	A-B	①
150×125	451	215	90	6.1	6.1	FTE1F1	FTE1F1E	A-B	①

Unit:mm

Size	L	Z	LT	Weight (kg/pc)		Item No.		Socket Dimension	Drawing No.
				ST	EX	ST	EX		
200×75	589	370	220	7.9	7.9	FTE2H4A	FTE2H4B	B-B	②
200×100	579	340	177	8.5	8.5	FTE2H3A	FTE2H3B	B-B	②
200×125	679	420	283	11.7	11.7	FTE2H2A	FTE2H2B	A-B	①
200×150	642	355	187	12.0	12.0	FTE2H1A	FTE2H1B	A-B	①
250×100	714	445	265	13.7	13.7	FTE2F4A	FTE2F4B	B-B	②
250×125	694	405	220	15.0	15.0	FTE2F3A	FTE2F3B	B-B	②
250×150	867	550	377	21.9	21.9	FTE2F2A	FTE2F2B	A-B	①
250×200	675	335	181	18.2	18.2	FTE2F1A	FTE2F1B	A-B	①
300×125	799	510	308	20.4	20.4	FTE3H4A	FTE3H4B	B-B	②
300×150	797	480	265	22.7	22.7	FTE3H3A	FTE3H3B	B-B	②
300×200	865	525	376	30.5	30.5	FTE3H2A	FTE3H2B	A-B	①
300×250	690	320	185	27.6	27.6	FTE3H1A	FTE3H1B	A-B	①
350×150	962	580	355	22.0	22.0	FTE3F4A	FTE3F4B	B-B	②
350×200	925	520	267	24.4	24.4	FTE3F3A	FTE3F3B	B-B	②
350×250	880	445	178	27.6	27.6	FTE3F2A	FTE3F2B	B-B	②
350×300	810	375	90	30.6	30.6	FTE3F1A	FTE3F1B	B-B	②
400×200	1075	620	353	31.9	31.9	FTE4H4A	FTE4H4B	B-B	②
400×250	1035	550	265	35.8	35.8	FTE4H3A	FTE4H3B	B-B	②
400×300	965	480	177	39.5	39.5	FTE4H2A	FTE4H2B	B-B	②
400×350	965	415	87	41.5	41.5	FTE4H1A	FTE4H1B	B-B	②
450×250	1180	645	352	45.3	45.3	FTE4F4A	FTE4F4B	B-B	②
450×300	1105	570	263	49.2	49.2	FTE4F3A	FTE4F3B	B-B	②
450×350	1105	505	173	52.0	52.0	FTE4F2A	FTE4F2B	B-B	②
450×400	1090	440	87	58.0	58.0	FTE4F1A	FTE4F1B	B-B	②
500×300	1210	675	350	57.6	57.6	FTE5H4A	FTE5H4B	B-B	②
500×350	1200	600	260	60.6	60.6	FTE5H3A	FTE5H3B	B-B	②
500×400	1185	535	173	67.3	67.3	FTE5H2A	FTE5H2B	B-B	②
500×450	1160	460	87	74.7	74.7	FTE5H1A	FTE5H1B	B-B	②
600×350	1450	800	450	96.3	96.3	FTE6H4A	FTE6H4B	B-B	②
600×400	1440	740	364	104.2	104.2	FTE6H3A	FTE6H3B	B-B	②
600×450	1405	655	277	112.0	112.0	FTE6H2A	FTE6H2B	B-B	②
600×500	1335	585	191	118.6	118.6	FTE6H1A	FTE6H1B	B-B	②

TS Flange



● JIS10K

Unit:mm

Size	φD1	φd1	ℓ	L	Z	φC	φD2		φd2	T		n-φh	Weight (kg/pc)		Item No.		Drawing No.
							ST	EX		ST	EX		ST	EX	ST	EX	
15	31	22.4	30	35	5	70	100	100	17	17	17	4-15	0.2		FTSF15	①	
20	35	26.5	35	40	5	75	105	105	21	17	17	4-15	0.2		FTSF20	①	
25	42	32.6	40	45	5	90	130	130	25	17	17	4-19	0.3		FTSF25	①	
32	48	38.6	44	50	6	100	140	140	31	19	19	4-19	0.4		FTSF30	①	
40	61	48.7	55	61	6	105	147	147	41	20	20	4-19	0.5		FTSF40	①	
50	73	60.8	63	70	7	120	162	162	52	24	24	4-19	0.7	0.7	FTSF50	FTSF50E	①
65	88	76.6	61	70	9	140	182	182	67	26	26	4-19	0.9	0.9	FTSF65	FTSF65E	①
80	102	89.6	64	72	8	150	192	192	78	26	26	8-19	1.0	1.0	FTSF75	FTSF75E	①
100	132	114.7	84	90	6	175	219	219	100	27	27	8-19	1.5	1.5	FTSF1H	FTSF1HE	①
125	158	140.9	104	114	10	210	261	261	125	30	30	8-23	2.4	2.4	FTSF1Q	FTSF1QE	①
150	186	166.0	132	142	10	240	291	291	146	32	32	8-23	3.5	3.5	FTSF1F	FTSF1FE	①
200	238	217.5	155	166	11	290	339	339	196	33	33	12-23	5.5	5.8	FVF2HA	FVF2HB	①
250	289	268.8	185	198	13	355	409	409	247	35	35	12-25	8.3	8.7	FVF2FA	FVF2FB	①
300	344	319.0	185	203	18	400	454	454	298	37	37	16-25	11.1	11.6	FVF3HA	FVF3HB	①
350	391	372.0	250	410	160	445	496	498	348	29	32	16-25	12.0	13.0	FVF3FA	FVF3FB	②
400	444	422.3	300	470	170	510	566	568	395	29	32	16-27	26.0	27.0	FVF4HA	FVF4HB	②
450	497	472.6	350	530	180	565	626	630	442	29	33	20-27	34.0	35.0	FVF4FA	FVF4FB	②
500	550	522.8	350	540	190	620	681	685	489	34	38	20-27	43.0	44.0	FVF5HA	FVF5HB	②
600	667	633.2	400	610	210	730	802	807	592	40	44	24-33	62.0	64.0	FVF6HA	FVF6HB	②

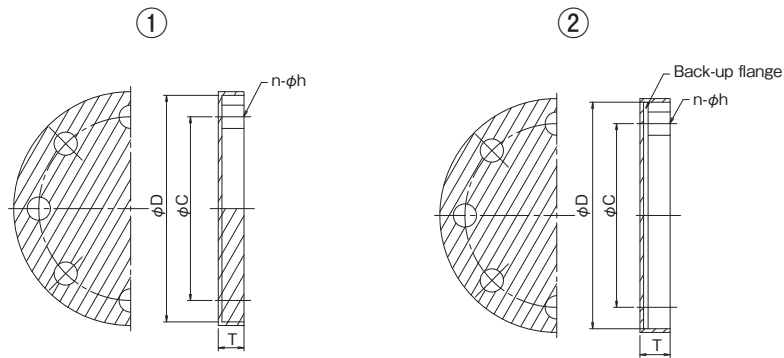
● ANSI

Unit:mm

Size	L	Z	φC	φD2		φd2	T		n-φh	Weight (kg/pc)		Item No.		Drawing No.
				ST	EX		ST	EX		ST	EX	ST	EX	
15	35	5	60.5	94	94	17	17	17	4-16	0.20		FTSFA15	①	
20	40	5	70.0	104	104	21	17	17	4-16	0.20		FTSFA20	①	
25	45	5	79.5	113	113	25	17	17	4-16	0.30		FTSFA25	①	
32	50	6	89.0	123	123	31	19	19	4-16	0.39		FTSFA30	①	
40	61	6	98.5	134	134	41	20	20	4-16	0.50		FTSFA40	①	
50	70	7	120.0	159	159	52	24	24	4-20	0.70	0.70	FTSFA50	FVFA50E	①
65	70	9	139.5	185	185	67	26	26	4-20	0.91	0.91	FTSFA65	FVFA65E	①
80	72	8	152.5	198	198	78	26	26	4-20	0.96	0.96	FTSFA75	FVFA75E	①
100	90	6	190.5	238	238	100	27	27	8-20	1.45	1.45	FTSFA1H	FVFA1HE	①
125	114	10	216.0	261	261	125	30	30	8-22	2.39	2.39	FTSFA1Q	FVFA1QE	①
150	142	10	241.5	291	291	146	32	32	8-22	3.49	3.49	FTSFA1F	FVFA1FE	①
200	166	11	298.5	352	352	196	33	33	8-22	5.50	5.80	FVFA2HA	FVFA2HB	①
250	198	13	362.0	415	415	247	35	35	12-26	8.30	8.70	FVFA2FA	FVFA2FB	①
300	203	18	432.0	492	492	298	37	37	12-26	11.10	11.60	FVFA3HA	FVFA3HB	①
350	410	160	176.0	541	543	348	29	32	12-28	12.00	13.00	※	※	②
400	470	170	540.0	601	603	395	29	32	16-28	26.00	27.00	※	※	②
450	530	180	578.0	641	645	442	29	33	16-32	34.00	35.00	※	※	②
500	540	190	635.0	706	710	489	34	38	20-32	43.00	44.00	※	※	②
600	610	210	749.5	822	827	592	40	44	20-35	62.00	64.00	※	※	②

※Please contact us.

## Blind Flange



### JIS10K

Unit:mm

Size	φ C	φ D	T		n-φ h	Weight (kg/pc)		Item No.		Drawing No.
			ST	EX		ST	EX	ST	EX	
15	70	95	16	16	4-15	0.21		FFSB15		①
20	75	100	18	18	4-15	0.23		FFSB20		①
25	90	125	18	18	4-19	0.32		FFSB25		①
32	100	135	20	20	4-19	0.40		FFSB30		①
40	105	140	20	20	4-19	0.51		FFSB40		①
50	120	155	21	21	4-19	0.65	0.65	FFSB50	FFSB50E	①
65	140	175	24	24	4-19	0.92	0.92	FFSB65	FFSB65E	①
80	150	185	24	24	8-19	0.96	0.96	FFSB80	FFSB80E	①
100	175	210	27	27	8-19	1.27	1.27	FFSB1H	FFSB1HE	①
125	210	250	29	29	8-23	2.08	2.08	FFSB1Q	FFSB1QE	①
150	240	280	33	33	8-23	2.91	2.91	FFSB1F	FFSB1FE	①
200	290	330	32	32	12-23	6.00	6.30	FFSB2HA	FFSB2HB	②
250	355	400	34	34	12-25	9.55	10.30	FFSB2FA	FFSB2FB	②
300	400	445	34	34	16-25	12.70	13.30	FFSB3HA	FFSB3HB	②
350	445	490	29	32	16-25	15.39	16.16	FFSB3FA	FFSB3FB	②
400	510	560	29	32	16-27	20.07	21.07	FFSB4HA	FFSB4HB	②
450	565	620	29	33	20-27	25.07	26.32	FFSB4FA	FFSB4FB	②
500	620	675	34	38	20-27	32.49	34.11	FFSB5HA	FFSB5HB	②
600	730	795	40	44	24-33	49.98	52.48	FFSB6HA	FFSB6HB	②

### ANSI

Unit:mm

Size	φ C	φ D	T		n-φ h	Weight (kg/pc)		Item No.		Drawing No.
			ST	EX		ST	EX	ST	EX	
15	60.3	89	16	16	4-16	0.21		FFSB15U		①
20	70.0	98	17	17	4-16	0.23		FFSB20U		①
25	79.5	108	19	19	4-16	0.32		FFSB25U		①
32	89.0	117	20	20	4-16	0.40		FFSB30U		①
40	98.5	127	22	22	4-16	0.51		FFSB40U		①
50	120.0	152	23	23	4-19	0.65	0.65	FFSB50U	FSB50UE	①
65	140.0	178	28	28	4-19	0.92	0.92	FFSB65U	FSB65UE	①
80	152.5	191	30	30	4-20	0.96	0.96	FFSB80U	FSB80UE	①
100	190.5	229	33	33	8-20	1.27	1.27	FFSB1HU	FSB1HUE	①
125	216.0	254	35	35	8-22	2.08	2.08	FFSB1QU	FSB1QUE	①
150	240.0	282	37	37	8-22	2.91	2.91	FFSB1FU	FSB1FUE	①
200	298.5	343	38	38	8-22	6.00	6.30	FSB2HUA	FSB2HUB	②
250	362.0	406	38	38	12-26	9.55	10.03	FSB2FUA	FSB2FUB	②
300	432.0	483	38	38	12-26	12.70	13.30	FSB3HUA	FSB3HUB	②
350	476.0	533	29	32	12-28	15.39	16.00	*	*	②
400	540.0	597	29	32	16-28	20.07	21.07	*	*	②
450	578.0	635	29	33	16-32	25.07	26.32	*	*	②
500	635.0	699	34	38	20-32	32.49	34.11	*	*	②
600	749.5	813	40	44	20-35	47.98	52.48	*	*	②

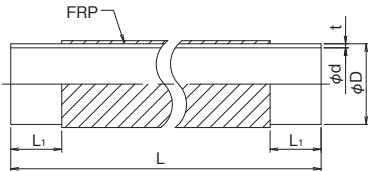
\*Please contact us.

## HTFW SPECIFICATIONS

### HTFW PIPE

#### ■ Pipe

Unit:mm

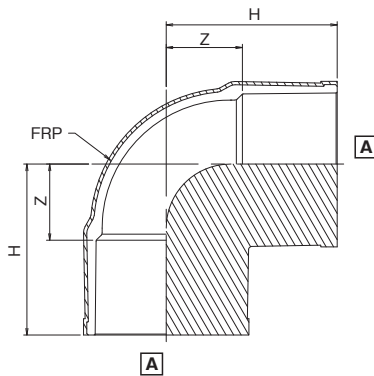


Size	φD	φd	t	L1	L	Weight (kg/pc)	Item No.	
							T-17	P-10
16	22 ±0.1	16	3.0	40 10/-0	4000±10	0.49	FWT164H	FWP164H
20	26 ±0.1	20	3.0	45 10/-0	4000±10	0.59	FWT204H	FWP204H
25	32 ±0.1	25	3.5	50 10/-0	4000±10	0.82	FWT254H	FWP254H
30	38 ±0.1	31	3.5	55 10/-0	4000±10	0.87	FWT304H	FWP304H
40	48 ±0.1	40	4.0	60 10/-0	4000±10	1.28	FWT404H	FWP404H
50	60 ±0.15	51	4.5	75 10/-0	4000±10	1.69	FWT504H	FWP504H
65	76 ±0.2	67	5.0	80 10/-0	4000±10	2.23	FWT654H	FWP654H
75	89 ±0.25	77	5.8	90 10/-0	4000±10	3.07	FWT754H	FWP754H
100	114 ±0.25	100	7.0	110 10/-0	4000±10	4.45	FWT1H4H	FWP1H4H
125	140 ±0.4	125	8.2	130 10/-0	4000±10	6.39	FWT1Q4H	FWP1Q4H
150	165 ±0.45	146	9.7	155 10/-0	4000±10	9.43	FWT1F4H	FWP1F4H
200	216 ±0.8	194	11.0	175 10/-5	4000±10	13.08	FWT2H4N	FWP2H4H
250	267 ±1.0	240	13.6	205 10/-5	4000±10	19.14	FWT2F4N	FWP2F4H
300	318 ±1.1	286	16.2	220 10/-5	4000±10	27.22	FWT3H4N	FWP3H4H

### HTFW Fitting

#### ■ 90° Elbow

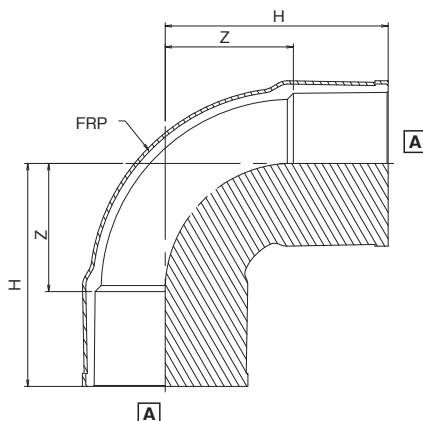
Unit:mm



Size	H	Z	Weight (kg/pc)	Item No.
16	41.0	14.0	0.09	FHTL16
20	53.0	20.0	0.12	FHTL20
25	58.0	20.0	0.15	FHTL25
30	64.0	22.0	0.20	FHTL30
40	74.0	27.0	0.30	FHTL40
50	85.0	33.0	0.48	FHTL50
65	114.0	44.0	0.85	FHTL65
75	123.5	44.5	1.31	FHTL75
100	156.0	63.0	2.58	FHTL1H
125	189.0	83.0	4.43	FHTL1Q
150	230.0	98.0	7.52	FHTL1F
200	261.5	116.5	11.60	FWTSL2H
250	317.8	142.8	19.40	FWTSL2F
300	355.0	170.0	28.60	FWTSL3H

#### ■ 90° Bend

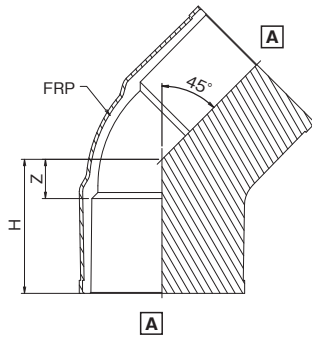
Unit:mm



Size	H	Z	Weight (kg/pc)	Item No.
200	341	196	15.94	FWTL2H
250	428	253	26.77	FWTL2F
300	441	256	39.22	FWTL3H

## 45° Elbow

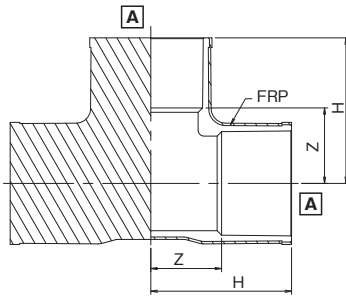
Unit:mm



Size	H	Z	Weight (kg/pc)	Item No.
16	33	6	0.06	FHT4L16
20	44	11	0.10	FHT4L20
25	50	12	0.14	FHT4L25
30	53	11	0.16	FHT4L30
40	61	14	0.23	FHT4L40
50	80	28	0.42	FHT4L50
65	94	24	0.67	FHT4L65
75	98	23	0.88	FHT4L75
100	123	29	1.56	FHT4L1H
125	149	45	3.15	FHT4L1Q
150	184	52	5.19	FHT4L1F
200	205	60	12.19	FWT4L2H
250	254	79	21.11	FWT4L2F
300	280	95	30.66	FWT4L3H

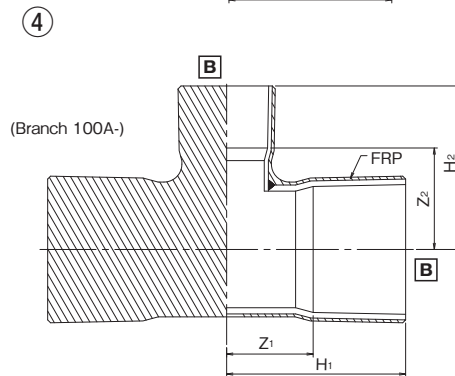
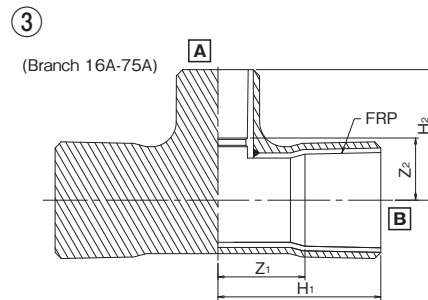
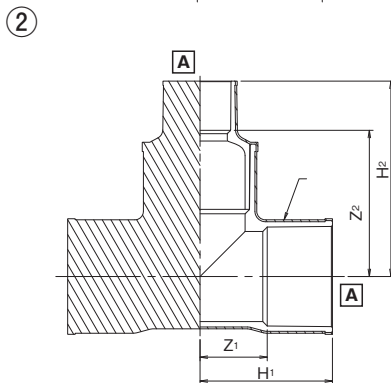
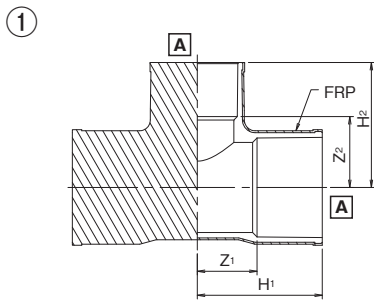
## Tee

Unit:mm



Size	H	Z	Weight (kg/pc)	Item No.
16	41	14	0.12	FHTT16
20	53	20	0.15	FHTT20
25	58	20	0.21	FHTT25
30	64	22	0.23	FHTT30
40	75	28	0.40	FHTT40
50	87	35	0.66	FHTT50
65	114	44	1.25	FHTT65
75	124	49	1.69	FHTT75
100	156	62	3.42	FHTT1H
125	189	85	6.35	FHTT1Q
150	230	98	9.49	FHTT1F
200	267	122	17.77	FWTT2H
250	355	180	35.10	FWTT2F
300	410	225	55.14	FWTT3H

Reducing Tee



Unit:mm

Size	H <sub>1</sub>	Z <sub>1</sub>	H <sub>2</sub>	Z <sub>2</sub>	Weight (kg/pc)	Item No.	Socket Dimension	Drawing No.
20×16	47	14	43	14	0.15	FHTT201	A-A	①
25×16	52	14	46	19	0.21	FHTT252	A-A	①
25×20	54	16	52	19	0.21	FHTT251	A-A	①
30×16	56	14	49	22	0.23	FHTT303	A-A	①
30×20	58	16	55	22	0.23	FHTT302	A-A	①
30×25	60	18	60	22	0.20	FHTT301	A-A	①
40×16	63	16	54	27	0.26	FHTT405	A-A	①
40×20	65	18	60	27	0.28	FHTT404	A-A	①
40×25	68	21	65	27	0.35	FHTT403	A-A	①
40×30	72	25	69	27	0.31	FHTT402	A-A	①
50×16	70	18	60	33	0.53	FHTT506	A-A	①
50×20	72	20	70	37	0.53	FHTT505	A-A	①
50×25	75	23	75	37	0.53	FHTT504	A-A	①
50×30	79	27	75	33	0.48	FHTT503	A-A	①
50×40	82	30	80	33	0.63	FHTT502	A-A	①
65×16	114	44	147	117	1.25	FHTT657	A-A	②
65×20	114	44	153	118	1.28	FHTT656	A-A	②
65×25	114	44	157	117	1.28	FHTT655	A-A	②
65×30	114	44	157	117	1.28	FHTT654	A-A	②
65×40	114	44	172	127	1.30	FHTT652	A-A	②
65×50	114	44	181	131	1.34	FHTT651	A-A	②
75×20	124	49	162	127	1.65	FHTT757	A-A	②
75×25	124	49	168	128	1.78	FHTT756	A-A	②
75×30	124	49	168	128	1.78	FHTT755	A-A	②
75×40	124	49	183	138	1.80	FHTT753	A-A	②
75×50	124	49	191	141	1.84	FHTT752	A-A	②
75×65	124	49	190	129	1.80	FHTT751	A-A	②
100×20	156	62	194	159	3.65	FHTT1H8	A-A	②
100×25	156	62	200	160	3.65	FHTT1H7	A-A	②
100×30	156	62	200	160	3.65	FHTT1H6	A-A	②
100×40	156	62	204	159	3.68	FHTT1H4	A-A	②
100×50	156	62	210	160	3.71	FHTT1H3	A-A	②
100×65	156	62	223	162	3.40	FHTT1H2	A-A	②
100×75	156	62	239	167	3.80	FHTT1H1	A-A	②
125×20	189	85	229	194	5.70	FHTT1Q8	A-A	②
125×25	189	85	235	195	5.70	FHTT1Q7	A-A	②
125×50	189	85	245	195	5.80	FHTT1Q4	A-A	②
125×65	189	85	255	194	5.90	FHTT1Q3	A-A	②
125×75	189	85	269	197	6.10	FHTT1Q2	A-A	②
125×100	189	85	288	196	6.20	FHTT1Q1	A-A	②
150×20	230	98	273	238	8.60	FHTT1F9	A-A	②

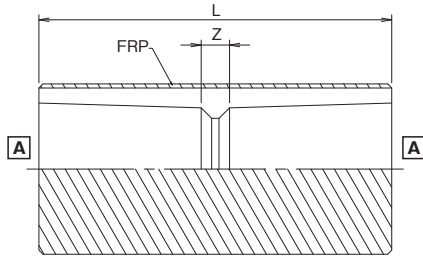
Unit:mm

Size	H <sub>1</sub>	Z <sub>1</sub>	H <sub>2</sub>	Z <sub>2</sub>	Weight (kg/pc)	Item No.	Socket Dimension	Drawing No.
150×25	230	98	278	238	8.60	FHTT1F8	A-A	②
150×75	230	98	317	245	8.90	FHTT1F3	A-A	②
150×100	230	98	331	239	9.20	FHTT1F2	A-A	②
150×125	230	98	342	238	9.40	FHTT1F1	A-A	②
200×16	240	85	152	125	6.00	FWT2H11	A-B	③
200×20	240	85	158	125	6.00	FWT2H10	A-B	③
200×25	245	90	163	125	6.20	FWTT2H9	A-B	③
200×30	250	95	167	125	6.30	FWTT2H8	A-B	③
200×40	255	100	172	125	6.50	FWTT2H7	A-B	③
200×50	260	105	177	125	6.00	FWTT2H6	A-B	③
200×65	270	115	200	130	6.60	FWTT2H5	A-B	③
200×75	275	120	205	130	7.20	FWTT2H4	A-B	③
200×100	218	73	200	116	7.98	FWTT2H2	A-A	①
200×125	295	140	282	170	8.70	FWTT2H3	B-B	④
200×150	245	100	257	125	6.16	FWTT2H1	A-A	①
250×16	280	95	177	150	10.70	FWT2F12	A-B	③
250×20	285	100	183	150	10.90	FWT2F11	A-B	③
250×25	285	100	188	150	10.90	FWTT2F10	A-B	③
250×30	290	105	192	150	11.10	FWTT2F9	A-B	③
250×40	295	110	197	150	11.30	FWTT2F8	A-B	③
250×50	300	115	202	150	11.60	FWTT2F7	A-B	③
250×65	310	125	225	155	12.10	FWTT2F6	A-B	③
250×75	315	130	235	160	12.37	FWTT2F5	A-B	③
250×100	330	145	282	190	13.35	FWTT2F4	B-B	④
250×125	340	155	307	195	14.30	FWTT2F3	B-B	④
250×150	355	180	524	392	14.28	FWTT2F2	A-A	②
250×200	335	160	335	190	15.00	FWTT2F1	A-A	①
300×16	290	105	202	175	15.50	FWTT3H13	A-B	③
300×20	295	110	208	175	15.80	FWT3H12	A-B	③
300×25	295	110	213	175	15.80	FWT3H11	A-B	③
300×30	300	115	217	175	16.10	FWT3H10	A-B	③
300×40	305	120	222	175	16.40	FWTT3H9	A-B	③
300×50	310	125	227	175	16.70	FWTT3H8	A-B	③
300×65	320	135	250	180	17.40	FWTT3H7	A-B	③
300×75	325	140	260	185	17.75	FWTT3H6	A-B	③
300×100	340	155	307	215	19.00	FWTT3H5	B-B	④
300×125	350	165	332	220	20.00	FWTT3H4	B-B	④
300×150	375	190	561	429	20.50	FWTT3H3	A-A	②
300×200	410	225	599	454	22.50	FWTT3H2	A-A	②
300×250	375	190	392	217	33.12	FWTT3H1	A-A	①



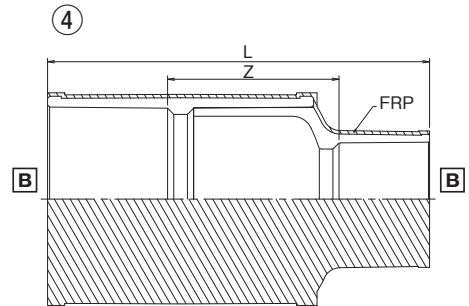
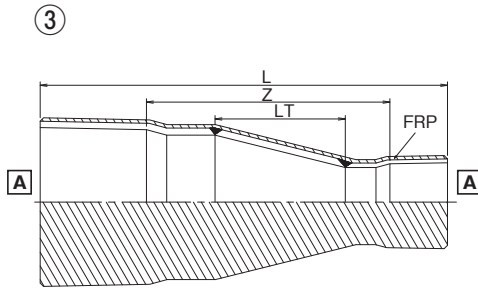
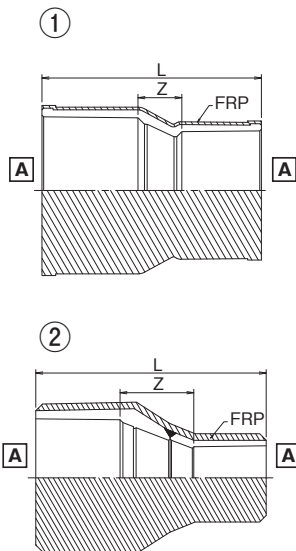
## Coupling

Unit:mm



Size	L	Z	Weight (kg/pc)	Item No.
16	59	5	0.07	FHTS16
20	71	5	0.09	FHTS20
25	82	6	0.11	FHTS25
30	89	5	0.13	FHTS30
40	99	5	0.22	FHTS40
50	109	5	0.27	FHTS50
65	145	5	0.48	FHTS65
75	154	8	0.79	FHTS75
100	200	12	1.73	FHTS1H
125	232	24	2.73	FHTS1Q
150	300	36	4.54	FHTS1F
200	300	10	6.20	FWTS2H
250	384	34	11.65	FWTS2F
300	408	38	15.52	FWTS3H

## Reducing Coupling



Unit:mm

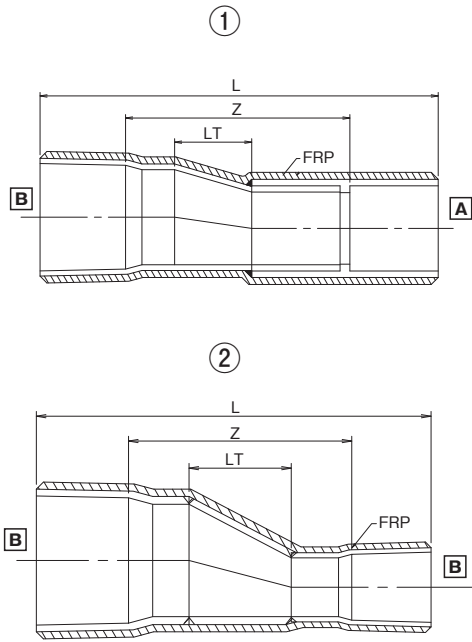
Size	L	Z	LT	Weight (kg/pc)	Item No.	Socket Dimension	Drawing No.
20×16	66	6	-	0.09	FHTS201	A-A	①
25×16	76	11	-	0.11	FHTS252	A-A	①
25×20	80.5	9.5	-	0.11	FHTS251	A-A	①
30×20	85	10	-	0.14	FHTS302	A-A	①
30×25	90	10	-	0.14	FHTS301	A-A	①
40×20	98	18	-	0.20	FHTS404	A-A	①
40×25	100	15	-	0.17	FHTS403	A-A	①
40×30	97	8	-	0.19	FHTS402	A-A	①
50×16	103	10	-	0.30	FHTS505	A-A	②
50×20	109	11	-	0.32	FWTS505	A-A	②
50×25	110	20	-	0.26	FHTS504	A-A	①
50×30	110	16	-	0.31	FHTS503	A-A	①
50×40	110	11	-	0.31	FHTS501	A-A	①
65×20	113	17	-	0.40	FHTS655	A-A	②
65×25	119	18	-	0.40	FHTS653	A-A	②
65×30	119	18	-	0.50	FHTS654	A-A	②
65×40	134	28	-	0.62	FHTS652	A-A	②
65×50	142	31	-	0.36	FHTS651	A-A	②
75×20	132	25	-	0.80	FHTS756	A-A	②
75×25	138	26	-	0.80	FHTS755	A-A	②
75×30	138	26	-	0.80	FHTS754	A-A	②
75×40	142	25	-	0.97	FHTS753	A-A	②
75×50	148	26	-	0.98	FHTS752	A-A	②
75×65	161	28	-	0.56	FHTS751	A-A	②
100×20	144	17	-	1.30	FHTS1H8	A-A	②

Unit:mm

Size	L	Z	LT	Weight (kg/pc)	Item No.	Socket Dimension	Drawing No.
100×25	150	18	-	1.68	FHTS1H7	A-A	②
100×50	160	18	-	0.89	FHTS1H3	A-A	②
100×65	170	17	-	0.76	FHTS1H2	A-A	②
100×75	184	20	-	0.76	FHTS1H1	A-A	②
125×20	175	36	-	2.00	FHTS1Q8	A-A	②
125×25	180	36	-	2.00	FHTS1Q7	A-A	②
125×75	219	43	-	2.20	FHTS1Q2	A-A	②
125×100	233	37	-	1.62	FHTS1Q1	A-A	②
150×20	343	176	-	3.30	FHTS1F9	A-A	③
150×25	348	176	-	3.30	FHTS1F8	A-A	③
150×75	387	183	-	9.33	FHTS1F3	A-A	③
150×100	401	177	-	9.64	FHTS1F2	A-A	③
150×125	412	176	-	9.90	FHTS1F1	A-A	③
200×75	617	390	237	7.60	FWTS2H4	B-B	④
200×100	602	355	190	7.85	FWTS2H2	B-B	④
200×125	582	315	142	8.10	FWTS2H3	B-B	④
200×150	368	91	-	9.34	FWTS2H1	A-A	③
250×100	742	465	286	13.30	FWTS2F4	B-B	④
250×125	722	425	237	13.50	FWTS2F3	B-B	④
250×150	557	250	-	16.80	FWTS2F2	A-A	②
250×200	400	80	-	15.30	FWTS2F1	A-A	③
300×125	832	535	332	20.50	FWTS3H4	B-B	④
300×150	605	288	-	32.70	FWTS3H3	A-A	②
300×200	601	271	-	29.55	FWTS3H2	A-A	②
300×250	435	75	-	21.70	FWTS3H1	A-A	③

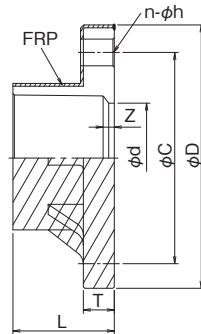
**TS Eccentric Reducer**

Unit:mm



Size	L	Z	LT	Weight (kg/pc)	Item No.	Socket Dimension	Drawing No.
20×16	115	55	15	0.10	FTES201	A-B	①
25×20	136	65	22	0.11	FTES251	A-B	①
30×25	150	70	22	0.10	FTES301	A-B	①
40×16	174	100	45	0.20	FTES404	B-B	②
40×20	175	95	38	0.20	FTES403	B-B	②
40×25	175	90	28	0.20	FTES402	B-B	②
40×30	174	85	37	0.20	FTES401	A-B	①
50×20	205	120	59	0.30	FTES504	B-B	②
50×25	205	115	49	0.33	FTES503	B-B	②
50×30	194	100	38	0.30	FTES502	B-B	②
50×40	204	105	44	0.50	FTES501	A-B	①
65×25	252	145	76	0.60	FTES654	B-B	②
65×30	251	140	66	0.60	FTES653	B-B	②
65×40	236	120	49	0.70	FTES652	B-B	②
65×50	246	125	55	0.80	FTES651	A-B	①
75×30	284	170	88	0.90	FTES754	B-B	②
75×40	274	155	71	0.90	FTES753	B-B	②
75×50	259	135	50	0.98	FTES752	B-B	②
75×65	272	130	47	1.00	FTES751	A-B	①
100×40	344	205	114	1.50	FTES1H4	B-B	②
100×50	334	190	94	1.50	FTES1H3	B-B	②
100×65	331	170	66	1.60	FTES1H2	B-B	②
100×75	357	190	91	1.78	FTES1H1	A-B	①
125×50	409	245	139	3.10	FTES1Q4	B-B	②
125×65	401	220	111	3.10	FTES1Q3	B-B	②
125×75	394	210	88	3.30	FTES1Q2	B-B	②
125×100	421	215	95	3.70	FTES1Q1	A-B	①
150×65	484	275	154	4.60	FTES1F4	B-B	②
150×75	472	260	132	4.60	FTES1F3	B-B	②
150×100	462	230	88	4.90	FTES1F2	B-B	②
150×125	459	215	90	5.20	FTES1F1	A-B	①
200×75	597	370	220	8.30	FTES2H4	B-B	②
200×100	587	340	177	8.30	FTES2H3	B-B	②
200×125	572	305	134	9.10	FTES2H2	B-B	②
200×150	650	363	187	9.95	FTES2H1	A-B	①
250×100	722	445	265	14.60	FTES2F4	B-B	②
250×125	702	405	220	14.60	FTES2F3	B-B	②
250×150	700	375	177	16.80	FTES2F2	B-B	②
250×200	675	335	181	15.57	FTES2F1	A-B	①
300×125	807	510	308	22.40	FTES3H4	B-B	②
300×150	805	480	265	22.70	FTES3H3	B-B	②
300×200	750	410	177	23.90	FTES3H2	B-B	②
300×250	720	350	185	22.90	FTES3H1	A-B	①

## TS Flange



### JIS10K

Unit:mm

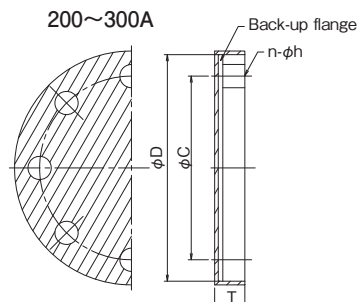
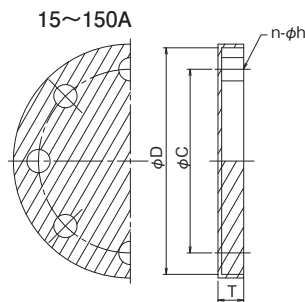
Size	L	Z	φC	φD	φd	T	n-φh	Weight (kg/pc)	Item No.
15	35	5	70	101	17	17	4-15	0.22	FHTF15
20	40	5	75	106	21	17	4-15	0.24	FHTF20
25	45	5	90	131	25	17	4-19	0.32	FHTF25
32	50	6	100	141	31	19	4-19	0.40	FHTF30
40	61	6	105	146	41	21	4-19	0.53	FHTF40
50	70	7	120	161	52	25	4-19	0.75	FHTF50
65	70	9	140	181	67	27	4-19	1.02	FHTF65
80	72	8	150	191	78	27	8-19	1.05	FHTF75
100	90	6	175	216	100	29	8-19	1.55	FHTF1H
125	114	10	210	256	125	33	8-23	2.40	FHTF1Q
150	142	10	240	286	146	35	8-23	3.55	FHTF1F
200	166	11	290	335	196	31	12-23	5.78	FHTF2H
250	198	13	355	405	247	33	12-25	8.82	FHTF2F
300	203	18	400	450	298	35	16-25	14.56	FHTF3H

### ANSI

Unit:mm

Size	L	Z	φC	φD	φd	T	n-φh	Weight (kg/pc)	Item No.
15	35	5	60.5	95.0	17	15	4-16	0.22	FHTFA15
20	40	5	70.0	104.0	21	16	4-16	0.24	FHTFA20
25	45	5	79.5	114.0	25	18	4-16	0.32	FHTFA25
32	50	6	89.0	123.5	31	19	4-16	0.40	FHTFA30
40	61	6	98.5	133.0	41	23	4-16	0.53	FHTFA40
50	70	7	120.0	161.0	52	25	4-19	0.75	FHTFA50
65	70	9	140.0	181.0	67	27	4-19	1.02	FHTFA65
80	72	8	152.5	197.0	78	29	4-20	1.05	FHTFA75
100	90	6	190.5	235.0	100	31	8-20	1.55	FHTFA1H
125	114	10	216.0	260.0	125	33	8-22	2.40	FHTFA1Q
150	142	10	240.0	286.0	146	35	8-22	3.55	FHTFA1F
200	166	11	298.5	348.0	196	32	8-22	5.78	FHTFA2H
250	198	13	362.0	411.0	247	34	12-26	8.82	FHTFA2F
300	203	18	432.0	488.0	298	35	12-26	14.56	FHTFA3H

## Blind Flange



### JIS10K

Unit:mm

Size	φC	φD	T	n-φh	Weight (kg/pc)	Item No.
15	70	95	14.0	4-15	0.2	FTFB15
20	75	100	16.0	4-15	0.3	FTFB20
25	90	125	16.5	4-19	0.3	FTFB25
32	100	135	19.0	4-19	0.4	FTFB30
40	105	140	19.0	4-19	0.5	FTFB40
50	120	155	21.5	4-19	0.6	FTFB50
65	140	175	23.5	4-19	0.9	FTFB65
80	150	185	23.5	8-19	1.0	FTFB80
100	175	210	23.5	8-19	1.5	FTFB1H
125	210	250	25.5	8-23	2.4	FTFB1Q
150	240	280	27.5	8-23	3.7	FTFB1F
200	290	330	29.5	12-23	4.2	FTFB2H
250	355	400	31.5	12-25	6.6	FTFB2F
300	400	445	29.0	16-25	7.9	FTFB3H

### ANSI

Unit:mm

Size	φC	φD	T	n-φh	Weight (kg/pc)	Item No.
15	60.5	89	14.5	4-16	0.17	FTFB15U
20	70.0	98	15.5	4-16	0.21	FTFB20U
25	79.5	108	17.5	4-16	0.32	FTFB25U
32	89.0	117	18.5	4-16	0.42	FTFB30U
40	98.5	127	20.5	4-16	0.45	FTFB40U
50	120.5	152	22.0	4-19	0.64	FTFB50U
65	139.5	178	27.0	4-19	0.96	FTFB65U
80	152.5	191	29.0	4-19	1.04	FTFB80U
100	190.5	229	31.5	8-19	1.57	FTFB1HU
125	216.0	254	33.5	8-22	2.33	FTFB1QU
150	241.5	282	37.0	8-22	3.67	FTFB1FU
200	298.5	343	37.0	8-22	6.42	FTFB2HU
250	362.0	406	37.0	12-25	10.18	FTFB2FU
300	432.0	483	37.0	12-25	13.48	FTFB3HU

## ESLON VPFW-HTFW INSTALLATION METHOD

Check the application instructions for details.



### 1 Cutting Pipe

Confirm the pipe's cutting length, taking the length of the fitting spigot into account. Use a magic marker to mark the pipe's cutting length with a right-angled line on the pipe axis. Use a hacksaw or electric circular saw to cut a right angle, following the cutting line to ensure there are no notches or spaces.



### 2 Cutting FRP Layer

Determine the length to be stripped, and mark a right-angled circular line on the pipe axis using a magic marker. To cut the FRP layer, use a hacksaw (machine, circular saw) or angle grinder, going from the marked circular line to the tip of the pipe to diagonally connect the two points. Only cut into the FRP layer. Be careful not to cut the PVC pipe.



### 3 Heat FRP Layer

Use a gas burner to quickly and uniformly heat the stripped FRP area, using the diagonal line connecting the circular strip line and the tip of the pipe as a starting point.



### 4 Strip FRP Layer

After heating, take needle nose or regular pliers and place at the starting point between the FRP layer. Swiftly strip away the entire FRP layer.



### 5 Sand Connection Surface

After stripping off the FRP layer, cleanly remove any leftover primer or FRP layer from the stripped area using sandpaper, a belt sander, or a sanding disk to treat the surface.



### 6 Sand FRP Reinforcement Area

Use sandpaper or a belt sander to treat the surface of the FRP reinforcement area between of the pipe and coupling, as this area is highly adhesive.



### 7 Chamfer Pipe

Failure to chamfer the tip of the pipe insertion area will cause the solvent cement to scrape off at time of insertion. Use a chamfering tool, flat file, or belt sander to chamfer the surface at a 45 degree angle. Sand, water, dust, or leftover FRP residue in the connection area will decrease the adhesive strength. Clean the area with a shop cloth, followed by an acetone cleaning treatment.



8

### Coat with Solvent Cement

Measure the length of the spigot of the fitting, then mark the pipe with a line. As best as possible, quickly coat both sides of the pipe and fitting with a thin, uniform layer of solvent cement.



9

### Insert Pipe

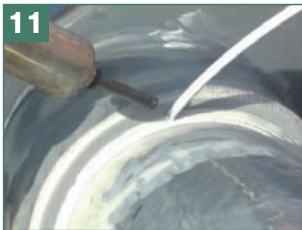
After coating with solvent cement, quickly insert the pipe in a single motion without stopping. Push the pipe to the insertion line and maintain pressure. Cleanly wipe off any protruding solvent cement with a shop cloth.



10

### Surface Treatment

Any remaining burns marks from the burner or solvent cement on the joint can cause the joint to malfunction or the tip of the joint to lose adhesive strength. Use a scraper, file, or welding gun to remove such protrusions until the surface of the pipe is cleanly exposed. Any dust or dirt stuck to the pipe can decrease adhesive strength. Use acetone to clean the connection area.



11

### PVC Welding Rod

Hold the welding rod at a 45 degree angle at a distance of 10-20 mm from the weld surface. Preheat both the welding rod and the weld surface, then bring the two together once the surface has become viscous. Next, stand the welding rod at a right angle and move the welding gun back and forth to complete the weld, applying heat at a ratio of 6 x 4 (pipe material x welding rod).



12

### Coat Primer

Clean the surface of the reinforced FRP area with acetone. Coat any PVC material protruding from the reinforced FRP area with primer.



13

### FRP Reinforcement

- ① Coat the entire reinforced area with polyester resin.
- ② Lay out a cardboard sheet, then set down the glass fiber. Use a brush or roller to coat the polyester resin onto the glass fiber.
- ③ Wrap the first layer of the glass fiber.
- ④ Wrap the second layer of the glass fiber.
- ⑤ Perform a hand lay-up process on the third layer (and all following layers).
- ⑥ Wrap the tricot tape.
- ⑦ Wrap the surface mat.

# ESLON™ UVS-VP

Outer layer coated with UV resistant weatherproofed plastic achieves high weather resistance for outdoor use.

Reducing the material's susceptibility to UV-degradation increases the product's lifespan.

Highly weatherized plastic and PVC layer creates a durable body that is resistant to peeling. This eliminates the need to maintain the coating.

### Recommended solvent cements

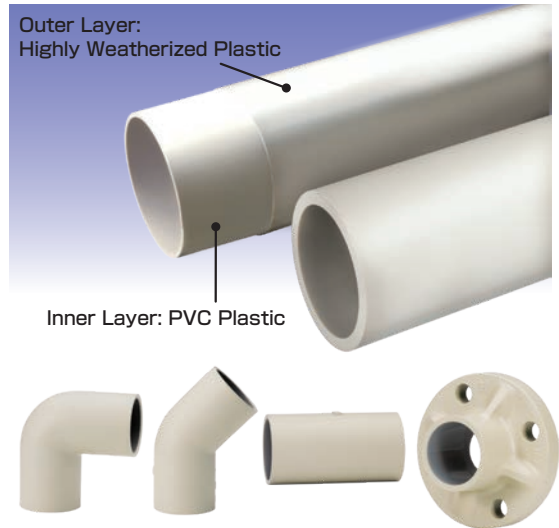
NO.100S



Primer P-810

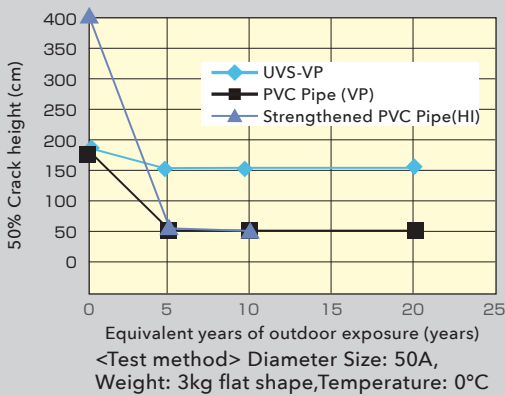


\*Refer to page 60 to confirm usability with other solvent cements.

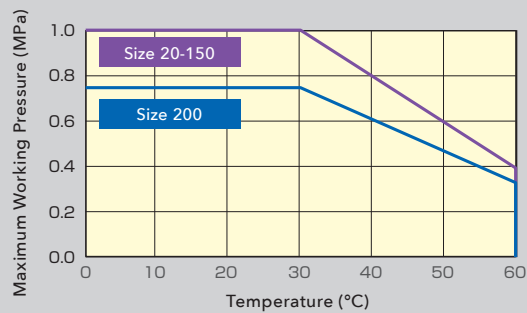


### Weatherproof Test (Impact Strength)

Outdoor exposure tests (equivalent to 20 years of exposure) showed an impact strength reduction of approximately 15%.

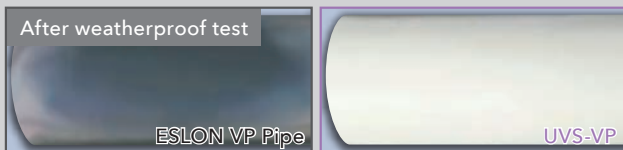


### Maximum Working Pressure



### Weatherproof Test (Exterior)

Material degradation and exterior discoloring were reduced.



### Peeling Test\*

Demonstrates that the weatherproof layer is resistant to peeling. <Notches are made in the sample, and tape is applied and peeled off 5 times>

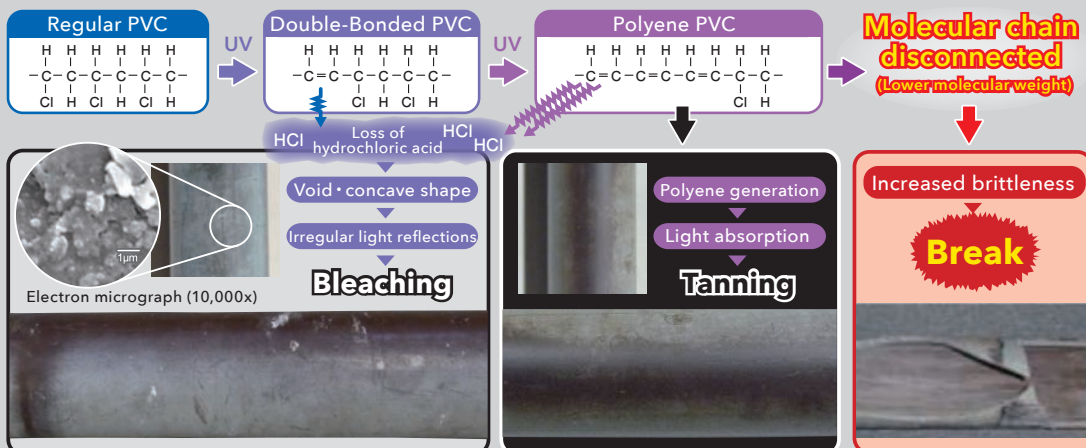


Significant peeling

Absolutely no peeling

\*Reference: JIS K5600-5-6 Crosscut Method Evaluation

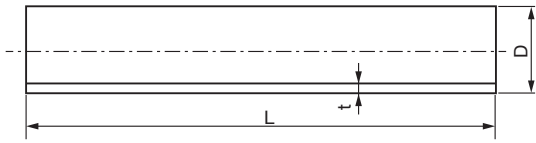
### UV Degradation Mechanism of PVC exposed Pipe



# UVS-VP SPECIFICATIONS

## Pipe

Unit:mm

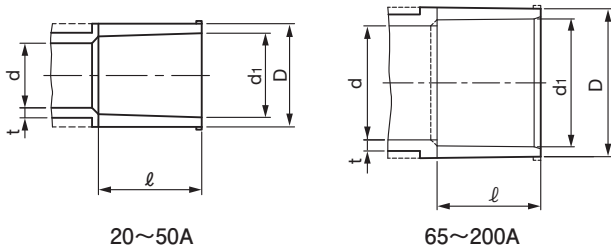


**⚠ Important Notes**  
Please don't use it for water pipe.

Size	D	t	L	Weight (kg/m)	Item No.
20	26	2.7	4000±10	0.310	UV204S
25	32	3.1		0.448	UV254S
40	48	3.6		0.791	UV404S
50	60	4.1		1.122	UV504S
65	76	4.1		1.445	UV654S
75	89	5.5		2.202	UV754S
100	114	6.6		3.409	UV1H4S
125	140	7.0		4.464	UV1Q4S
150	165	8.9		6.701	UV1F4S
200	216	10.3		10.129	UV2H4S

## Socket Dimension

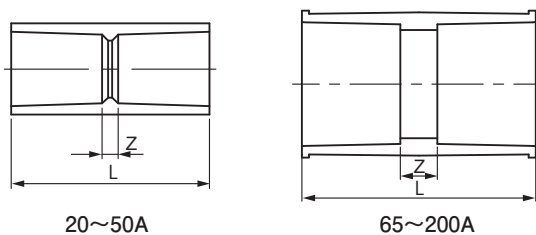
Unit:mm



Size	D	t	d <sub>1</sub>	ℓ	d
20	33	3.5	26.45	35	20
25	40	4.0	32.55	40	25
40	57	4.5	48.70	55	40
50	70	5.0	60.80	63	51
65	87	6.6	76.60	61	67
75	102	8.0	89.60	64	77
100	130	10.0	114.70	84	100
125	157	11.0	140.85	104	125
150	186	13.0	166.00	132	146
200	243	13.0	217.40	145	196

## Coupling

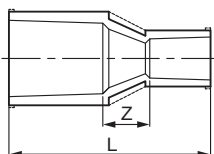
Unit:mm



Size	L	Z (Ref.)	Weight (kg/pc)	Item No.
20	77	7	0.040	UVS20
25	87	7	0.061	UVS25
40	117	7	0.142	UVS40
50	133	7	0.210	UVS50
65	145	23	0.366	UVS65
75	155	27	0.515	UVS75
100	200	32	1.077	UVS1H
125	240	24	1.715	UVS1Q
150	300	36	2.846	UVS1F
200	300	10	3.557	UVS2H

## Reducing Coupling

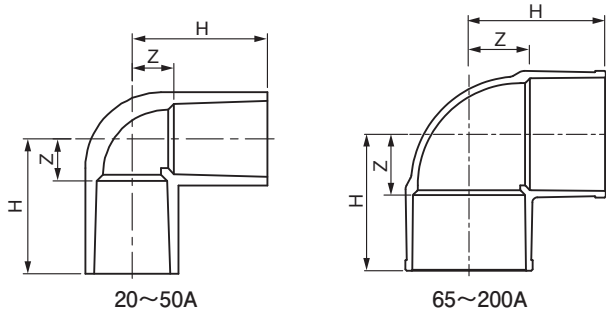
Unit:mm



Size	L	Z (Ref.)	Weight (kg/pc)	Item No.	Size	L	Z (Ref.)	Weight (kg/pc)	Item No.
25×20	84	9	0.053	UVS251	75×50	165	38	0.450	UVS752
40×20	113	23	0.095	UVS404	75×60	159	34	0.487	UVS751
40×25	114	19	0.110	UVS403	100×75	190	42	0.890	UVS1H1
50×20	116	18	0.160	UVS505	125×100	229	41	1.531	UVS1Q1
50×25	140	37	0.180	UVS504	150×100	295	79	2.348	UVS1F2
50×40	136	18	0.185	UVS501	150×125	272	36	2.369	UVS1F1
65×50	149	25	0.336	UVS651	200×150	368	91	3.947	UVS2H1

90° Elbow

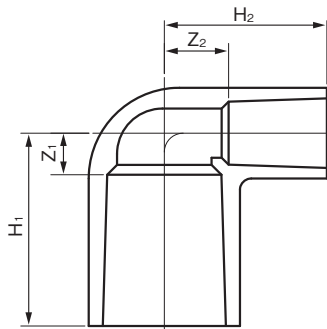
Unit:mm



Size	H	Z (Ref.)	Weight (kg/pc)	Item No.
20	50.0	15	0.050	UVL20
25	58.0	18	0.076	UVL25
40	82.0	27	0.201	UVL40
50	96.0	33	0.309	UVL50
65	110.0	49	0.536	UVL65
75	120.0	56	0.803	UVL75
100	155.0	71	1.653	UVL1H
125	187.0	83	2.760	UVL1Q
150	230.0	98	4.584	UVL1F
200	261.5	116	6.600	UVL2H

Reducing Elbow

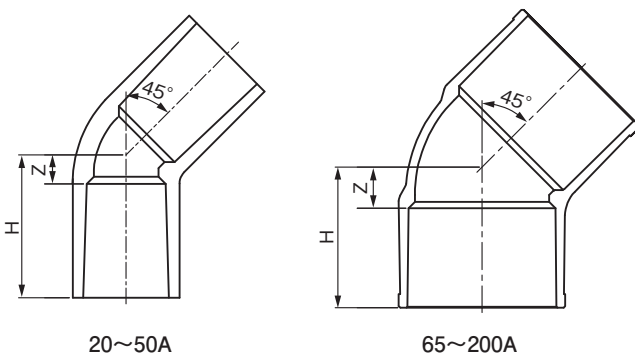
Unit:mm



Size	H <sub>1</sub>	Z <sub>1</sub> (Ref.)	H <sub>2</sub>	Z <sub>2</sub> (Ref.)	Weight (kg/pc)	Item No.
25×20	55	15	53	18	0.064	UVL251

45° Elbow

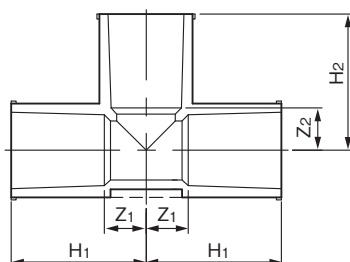
Unit:mm



Size	H	Z (Ref.)	Weight (kg/pc)	Item No.
20	44	9	0.039	UV4L20
25	51	11	0.068	UV4L25
40	69	14	0.142	UV4L40
50	81	18	0.245	UV4L50
65	94	33	0.515	UV4L65
75	98	34	0.660	UV4L75
100	123	39	1.262	UV4L1H
125	149	44	1.970	UV4L1Q
150	184	51	3.445	UV4L1F
200	205	60	5.600	UV4L2H

Tee

Unit:mm

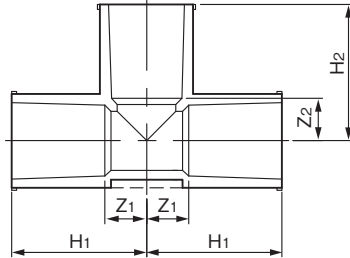


Size	H <sub>1</sub> / H <sub>2</sub>	Z <sub>1</sub> / Z <sub>2</sub> (Ref.)	Weight (kg/pc)	Item No.
20	50	15	0.070	UVT20
25	58	18	0.119	UVT25
40	82	27	0.276	UVT40
50	96	34	0.443	UVT50
65	110	49	0.769	UVT65
75	120	56	1.158	UVT75
100	152	68	2.254	UVT1H
125	187	83	3.980	UVT1Q
150	230	98	6.365	UVT1F
200	267	122	8.189	UVT2H



Reducing Tee

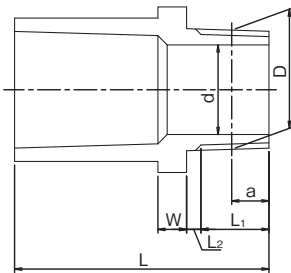
Unit:mm



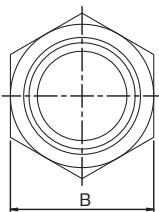
Size	H <sub>1</sub>	H <sub>2</sub>	Z <sub>1</sub> (Ref.)	Z <sub>2</sub> (Ref.)	Weight (kg/pc)	Item No.
25 × 20	55	53	15	18	0.091	UVT251
40 × 20	70	62	17	27	0.182	UVT404
40 × 25	73	67	18	27	0.208	UVT403
50 × 20	78	68	15	33	0.280	UVT505
50 × 25	81	73	18	33	0.283	UVT504
50 × 40	90	88	27	33	0.345	UVT501
65 × 50	101	104	40	41	0.616	UVT651
75 × 25	93	88	29	48	0.670	UVT756
75 × 40	100	102	36	47	0.816	UVT753
75 × 50	105	110	41	47	0.907	UVT752
75 × 65	113	117	49	56	1.012	UVT751
100 × 50	125	122	41	59	1.486	UVT1H3
100 × 75	140	132	56	68	1.818	UVT1H1
125 × 100	173	167	69	83	3.317	UVT1Q1
150 × 75	195	158	63	94	4.246	UVT1F3
150 × 100	208	182	76	98	4.954	UVT1F2
150 × 125	217	201	85	97	5.125	UVT1F1
200 × 75	201	180	56	116	5.575	UVT2H4
200 × 100	218	200	73	116	6.500	UVT2H3
200 × 150	245	257	100	125	8.400	UVT2H1

Male Adapter (Production to order)

Unit:mm

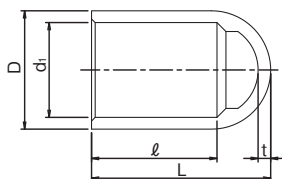


Size	d	Threaded section						L <sub>2</sub>	W	L	B	Weight (kg/pc)	Item No.
		Nominal	Standard outer dia. D1	Number of screw threads (per 25.4 mm)	Standard dia. position a	Tolerance for a	Effective thread length L <sub>1</sub>						
20	18	R3/4	26.441	14	9.53	±1.81	17	3.5	8	64	33	0.023	UVVS20
25	23	R1	33.249	11	10.39	±2.31	19	4.0	8	71	40	0.047	UVVS25
40	37	R1 · 1/2	47.803	11	12.70	±2.31	22	5.0	10	92	57	0.100	UVVS40
50	48	R2	59.614	11	15.88	±2.31	26	5.0	12	106	70	0.168	UVVS50
65	63	R2 · 1/2	75.184	11	17.50	±6.90	30	6.0	14	119	91	0.272	UVVS65
75	74	R3	87.884	11	20.60	±6.90	34	6.0	16	128	108	0.402	UVVS75
100	96	R4	113.03	11	25.40	±6.90	40	7.0	18	157	135	0.765	UVVS1H



Cap (Production to order)

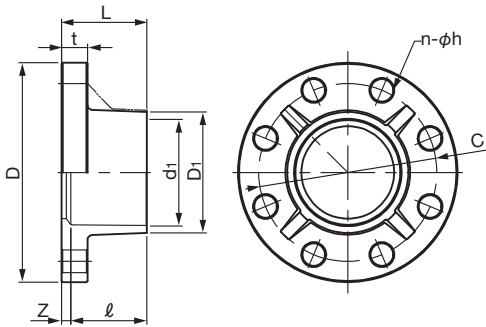
Unit:mm



Size	D	d <sub>1</sub>	L	l	t	Weight (kg/pc)	Item No.
20	33.0	26.45	50.0	35.0	3.5	0.025	UVC20
25	40.0	32.55	58.5	40.0	4.0	0.039	UVC25
40	57.0	48.70	82.0	55.0	4.5	0.091	UVC40
50	70.0	60.80	96.5	63.0	5.0	0.146	UVC50
75	102.0	89.60	105.0	64.0	8.0	0.442	UVC75
100	130.0	114.70	138.0	84.0	10.0	0.775	UVC1H

**Flange**

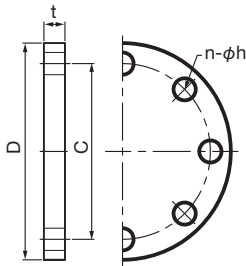
Unit: mm



Size		d <sub>1</sub>	l	D <sub>1</sub>	L	Z	C	D	t	n-φh	Weight (kg/pc)	Item No.
A	B											
20	3/4	26.5	35	35	40	5	75	100	14	4-15	0.150	UVF20
25	1	32.6	40	42	45	5	90	125	14	4-19	0.235	UVF25
40	1-1/2	48.7	55	61	61	6	105	140	16	4-19	0.360	UVF40
50	2	60.8	63	73	70	7	120	155	20	4-19	0.520	UVF50
65	2-1/2	76.6	61	88	70	9	140	175	22	4-19	0.710	UVF65
80	3	89.6	64	102	72	8	150	185	22	8-19	0.745	UVF80
100	4	114.7	84	132	90	6	175	210	22	8-19	1.140	UVF1H
125	5	140.9	104	158	114	10	210	250	24	8-23	1.670	UVF1Q
150	6	166.0	132	186	142	10	240	280	26	8-23	2.530	UVF1F
200	8	217.5	155	238	166	11	290	330	28	12-23	3.620	UVF2H

**Blind Flange (Production to order)**

Unit: mm



Size		D	t	C	n-φh	Applicable Bolt	Weight (kg/pc)	Item No.	
A	B								
20	3/4	100	14	75	4-15	M12	50	0.229	UFSB20
25	1	125	14	90	4-19	M16	55	0.310	UFSB25
40	1-1/2	140	16	105	4-19	M16	60	0.335	UFSB40
50	2	155	16	120	4-19	M16	70	0.417	UFSB50
65	2-1/2	175	18	140	4-19	M16	75	0.606	UFSB65
80	3	185	18	150	8-19	M16	75	0.651	UFSB80
100	4	210	18	175	8-19	M16	80	0.856	UFSB1H
125	5	250	20	210	8-23	M20	80	1.345	UFSB1Q
150	6	280	22	240	8-23	M20	85	1.884	UFSB1F
200	8	330	22	290	12-23	M20	90	2.605	UFSB2H

**Use Case**



# ESLON UVS-VP BASIC PHYSICAL PROPERTIES · HEAD LOSS

## Basic Physical Properties

Test item		Standards	Units	ESLON UVS-VP	PVC pipe	Notes
Mechanical	Tensile strength (yield strength)	JIS K 6815	MPa	48 ~ 52	48 ~ 52	Elongation at break
	Elongation rate		%	100 ~ 200	100 ~ 200	
	Young's modulus	JIS K 7113	MPa	2600 ~ 2900	2600 ~ 2900	
	Poisson's ratio		—	0.38	0.38	
	Charpy impact strength	JIS K 7111	kJ/m <sup>2</sup>	3 ~ 7	3 ~ 7	
Thermal	Specific heat	JIS K 7123	J/ (g·K)	0.8 ~ 2.0	0.8 ~ 2.0	5 kg load
	Thermal conductivity	Temperature gradient method	W/ (m·K)	0.128 ~ 0.163	0.128 ~ 0.163	
	Vicat softening temperature	JIS K 7206	°C	79 ~ 83	79 ~ 83	
	Linear expansion coefficient	ASTM D 696	°C <sup>-1</sup>	6 ~ 8 × 10 <sup>-5</sup>	6 ~ 8 × 10 <sup>-5</sup>	
Electrical	Volume resistivity	ASTM D 257	Ω·cm	0.2 ~ 0.3 × 10 <sup>15</sup> 以上	0.2 ~ 0.3 × 10 <sup>15</sup> 以上	
	Dielectric strength	ASTM D 149	kV/mm	40kV/mm and up	40kV/mm and up	
Weather	Discoloration (ΔE)	Color difference	ΔE	5 ≧	20 ≦	Metal weathering test Equivalent of 10 years

## Head Loss

ESLON UVS-VP has an inner layer made from PVC plastic, making it resistant to rust and corrosion. The smooth surface makes it difficult for scaling to occur, giving the material a long lifespan. The friction head loss caused by the flow of water is determined by the total number of deformations in the straight pipe, fittings, and valves.

### 1) Straight pipe head loss

Friction head loss for straight pipe is determined via the Darcy-Weisbach method (1). Using this formula, the friction head loss for VP UVS-VP pipe is Δh Pa/ m(mAq/m).

$$\Delta h = \lambda \cdot (L/d) \cdot (V^2/2g) \dots\dots\dots (1)$$

λ: Pipe friction coefficient(0.02) L: Pipe length(m) d: Pipe inner diameter(m)  
V: Inner pipe flow speed(m/sec) g: Gravitational acceleration(=9.8 m/sec<sup>2</sup>)

Flow speed for each pipe can be determined using Q (ℓ/min) with  
 $Q=60 \cdot 1000 \cdot \pi \cdot (d/2)^2 \cdot V$ .

### 2) Friction head loss from deformations

Head loss for elbow, tee, and valves are determined via formula (2) and table 2.

$$h=f \cdot V^2/2g \dots\dots\dots (2)$$

h: head loss (m) V: inner pipe flow speed (m/sec) f: head loss coefficient (according to table 2) g: Gravitational acceleration (=9.8 m/sec<sup>2</sup>)

In general, the pipe's friction head loss of pipes is determined by using the equivalent lengths in table-3 and adding to the length of straight pipe.

**Table-1 Unit Conversion Table**

m <sup>3</sup> /min	m <sup>3</sup> /sec	ℓ /sec	ℓ /min
1	0.01667	16.67	1000
60	1	1000	60000
0.06	0.001	1	60
0.001	1.667 × 10 <sup>-5</sup>	0.01667	1

**Table-2 Head loss coefficient based on shape of fittings**

FITTINGS TYPES	Shape	f	
Elbow	45°	0.4	
	90°	1.0	
Tee	If direct flow	0.35	
	Split	If turning 90°	1.2
		If the end is divided into both left/right	1.2
Reducer	(Varies depending on diameter)	0.1 ~ 0.5	

**Table-3 Equivalent pipe length of fittings and valves**

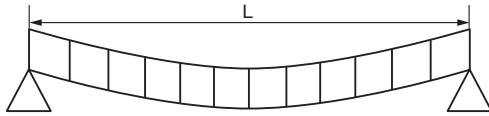
Size (mm)	Equivalent length of fittings(m) <sup>*1</sup>				Equivalent length of valves (m) <sup>*2</sup>			
	90° Elbow	45° Elbow	90° Tee (Pipe Junction)	90° Tee (Straight)	Gate valve	Globe valve	Angle valve	Check valve
20	0.88	0.35	1.06	0.31	0.15	6.0	3.6	1.6
25	1.14	0.46	1.37	0.40	0.18	7.5	4.5	2.0
40	1.97	0.79	2.36	0.69	0.30	13.5	6.6	3.1
50	2.61	1.04	3.13	0.91	0.39	16.5	8.4	4.0
65	3.59	1.43	4.30	1.26	0.48	19.5	10.2	4.6
75	4.23	1.69	5.07	1.48	0.63	24.0	12.0	5.7
100	5.70	2.28	6.84	1.99	0.81	37.5	16.5	7.6
125	7.40	2.96	8.88	2.59	0.99	42.0	21.0	10.0
150	8.85	3.54	10.62	3.10	1.20	49.5	24.0	12.0
200	12.33	4.93	14.80	4.32	1.40	70.0	33.0	15.0

\*1 Calculated as 1.5m/sec velocity  
\*2 Citations: Handbook of Air Conditioning Public Health Engineering If foot valve and angle valve are the same, and check valve is swing type.

## ESLON UVS-VP SUPPORT SPACING · SUPPORT METHOD

### Support Interval

Deflection from weight of horizontally placed pipes is calculated using the model in the figure below.



Uniformly distributed load: W

In this instance, deflection amount ( $\delta$ ) is calculated using the formula below.

$$\delta = (5WL^4)/(384EI)$$

$\delta$ : Deflection (cm) L: Support interval (cm)

W: Unit length/weight (kg/cm) E: Young's modulus (27,500kgf/cm<sup>2</sup>)

I: Cross section second moment (cm<sup>4</sup>)

$$= \pi ((\text{outer diameter of pipe})^4 - (\text{inner diameter of pipe})^4) / 64$$

Support interval for 3mm and 1mm deflection shown in the following table.

Support Interval for Deflection Across Size

Deflection \ Size	20	25	40	50	65	75	100	125	150	200
1mm	0.8m	0.9m	1.0m	1.2m	1.3m	1.4m	1.5m	1.7m	1.8m	1.9m
3mm	1.1m	1.2m	1.4m	1.5m	1.7m	1.8m	2.1m	2.2m	2.4m	2.5m

<Note> Suspended Support Interval for Horizontal Pipe

Public Building Construction Standards and Specifications, Ministry of Land, Infrastructure and Transport (Machinery and Equipment Work Edition)

Size	15	20	25	32	40	50	65	80	100	125	150	200	250	300
Vinyl or polyethylene pipe	Under 1.0m								Under 2.0m					

Standard Specification for Air-Conditioning and Plumbing Works from The Society of Heating, AirConditioning and Sanitary Engineers of Japan

Size	15	20	25	32	40	50	65	80	100	125	150	200	250	300
PVC pipe	Under 0.8m	Under 1.0m				Under 1.2m	Under 1.5m			Under 2.0m				

### Support Method

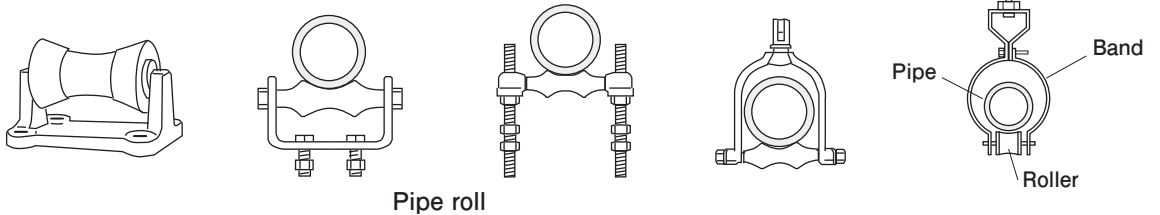


There are two support methods: loose support (free-moving) and fixed support. Note that if the support fitting area is tightened too hard, the surface of the pipe may suffer from tensile stress, which may lead to environmental stress cracking (ESC). Due to this, you should be cautious when carrying out each application, clearly distinguishing between the two support methods.

#### Loose Support

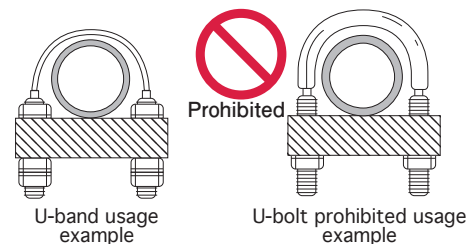
##### (1) Pipe Roll Support Fitting

Use a loosened support fitting on the pipe as shown in the figure below.



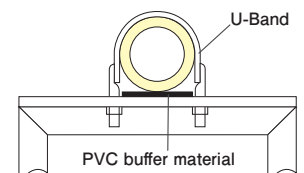
##### (2) U-band

Be sure to select a u-band that has an inner diameter larger than the pipe's outer diameter. Use two nuts positioned above and below the support jig, and place the u-band in a position suspended slightly above the top of the pipe. Avoid placing pressure onto the support area of the pipe with a single nut. Note that u-bolts should not be used as they concentrate stress.



#### Fixed Support

For fixed support, use a u-band and a PVC buffer material at the base of the pipe. Be careful not to overtighten the u-band nut in order to avoid flattening the pipe. Do not use a u-bolt, as overtightening will concentrate stress and may break the pipe.



<Note> Fixed support from u-band

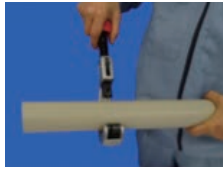
# APPLYING ESLON UVS-VP

## Installation Method

### 1 Cutting Pipe

Cut the pipe at a right angle facing the tube axis.

Bond strength is decreased with diagonal or non-complete cuts.



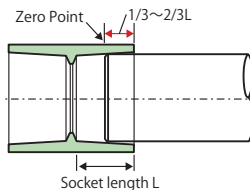
### 2 Deburring & Bevelling

Lightly chamfer around the cut pipe using a chamfering tool. Create a smooth pipe tip with no burrs or flash.



### 3 To Determine Zero Point

Lightly insert the pipe into the fitting socket. Check that the pipe stops (zero point) at a position between 1/3 to 2/3 the length (L) of the socket.



### 4 Marking Insertion Line

For sizes under 40, mark an insertion line from where the end of the pipe reaches the length of the socket. For sizes over 50, mark an insertion line, adding 1/3 the length of the socket to the zero point (from the tip of the pipe).

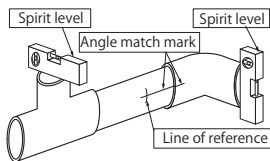
Size	20	25	40	50	65	75	100	125	150	200
L	35	40	55	63	61	64	84	104	132	145
1/3L	—	—	—	21	20	21	28	35	44	48

\*For TS Flange 200A, L=155, 1/3L=52

### 5 Preparation for Inserting

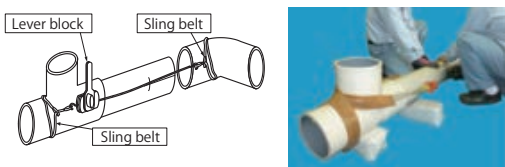
#### 1) Match Angles

Temporarily insert the pipe into the fitting. Use a spirit level to adjust to the target angle. Then mark a line on both the pipe and fitting using an oil-based felt pen. This will serve as your target for insertion.



#### 2) Equip Insertion Fixture (Size 65 and Up)

For sizes 65 and up, coat with solvent cement, then set up an insertion jig to allow for swift insertion.

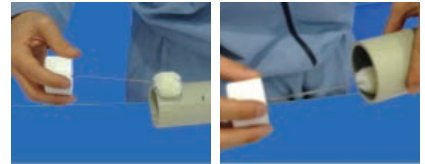


### 6 Cleaning Pipe and Fittings

Use a dry shop cloth to cleanly wipe off dirt adhered to the connection area (on the inside of the fitting socket and outside of the pipe).

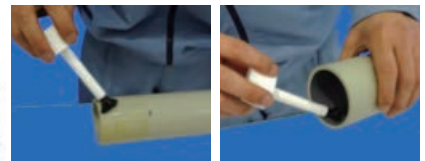
### 7 Applying Primer

Apply a coat to the pipe and the connection side of the fitting with ESLON P-810 Primer for UVS-VP.



### 8 Applying Solvent Cement

Apply a coat to the pipe and the connection side of the fitting with ESLON NO.100S Solvent Cement.



### 9 Inserting

After applying solvent cement, match the marked lines, quickly insert the pipe to the marking, and hold in place. Hold for the target time shown in the below figure. Do not let the pipe and fitting come apart.

Temperature (season)	Size	
	20 ~ 50	65 ~ 200
Summertime	More Than 30 Seconds	More Than 1 Minute
Wintertime	30 Seconds	More Than 2 Minutes

### 10 Wipe Off Protruding Solvent Cement

Wipe off solvent cement protruding from the connection area with a shop cloth.

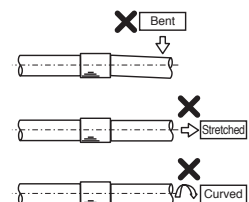
●Get rid of any protruding solvent cement. Leftover organic solvents may lead to cracks and leaks when using the pipe/fitting.

### 11 Cure

After connecting the pipe, leave in place until the solvent cement dries. Avoid putting any force on the connection area.

Water pressure testing and use may commence once curing is complete.

Standard cure time after connection is over 24 hours at room temperature. Note that cure time increases to over 48 hours during wintertime (low temperatures).



### 12 Inspection

After connecting the pipes, perform a water pressure check under normal usage conditions. Confirm whether there are any leaks.

- Wait at least 24 hours after final connection before adding additional pressure for water testing.
- When adding pressure, be sure to remove all air from the pipes before increasing the water pressure.
- Do not add pressure using air. If there are any cracks in the pipe or fitting, the air will expand, causing a violent explosion and possibly resulting in injury.
- Do not use gas leak detection spray, as it may penetrate into the pipe material.