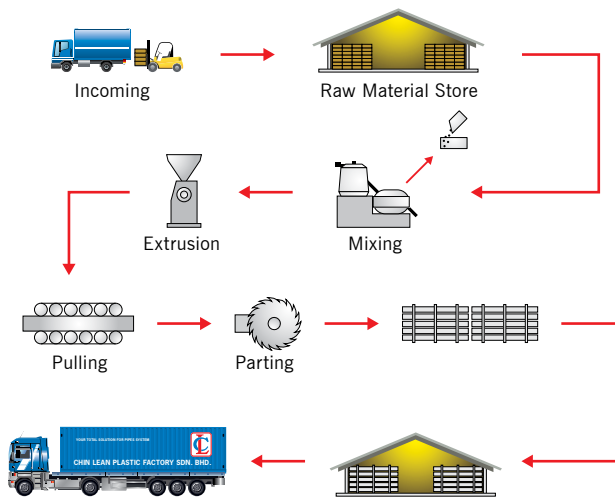


MANUFACTURING PROCESS FLOW



MATERIAL PROPERTIES		
Property	Value	Unit
Specific gravity	1400	kg/m ³
Specific heat	1000	J/kg/°C
Thermal conductivity	1.6	W/m/°C
Coefficient of linear expansion	6 x 10 ⁻⁵	mm/mm/°C
Vicat softening point	79	°C
Modulus of elasticity in bend	3000	N/mm ²
Tensile strength at yield @ 20°	45	N/mm ²
Elongation at break	80	%

QUALITY CONTROL PROCEDURE

These quality control procedures normally include:

- Raw materials, PVC compound, processing parameters in terms of temperature, pressure and energy input.
- Visual inspection and dimension of diameter, wall thickness and length.
- Production tests carried out one sample every 8 hours:
 - 1) Impact Tests – to check the general toughness of the pipe and its ability to withstand the normal shocks which may be expected during handling, transportation and installation during normal use.
 - 2) Longitudinal Reversion Tests – designed to show up any excessive built-in (residual) stresses in the pipes and fittings.

3) Tensile strength – to determine the strength over elongation characteristics of pipe material when applied tension force to the sample piece.

ADVANTAGES

Corrosion Resistance – Sanitary drains generate significant volumes of Hydrogen Sulphide gas from bacterial action, which results in the generation of dilute Sulphuric and sulphurous acids especially in turbulent areas. PVC-u has excellent resistance to Sulphuric Acid.

Weather Resistance – SWV pipes and fittings provided long term UV protection when installed above ground because there have additive Titanium Dioxide inside the PVC compounded

Handling / Installation – The ease of handling, installation and transport provide overall project savings.

Flexibility – There is flexibility to cope with water & soil movements, subsidence and expansive clays.

Superior flow characteristics - It's very smooth bore and chemical resistance characteristics ensure no scale or built up corrosion, thus producing a high flow capacity.

Easily Machined / Cut – It may be cut and machined with simple tools, ready for jointing, anywhere on the pipe barrel.

Chemical Resistance – PVC-u pipe has excellent resistance to a wide range of chemicals at ambient temperatures. PVC should not be used with aldehydes, ethers, esters, aromatics, chlorinated hydrocarbons, ketones, benzene mixtures or similar solvents.



Product Description

CHINLEAN SWV pipe is a smooth external and internal surface with solid wall PVC-u pipe to give an extra rigid durable pipe system, manufactured and tested in accordance to **MS 1063: 2000** (Equivalence to **BS EN 1329-1**)

This is an excellence piping system intended to be used for soil and waste discharge pipework to conveyance the domestic waste water at low and high temperature, ventilating and rainwater pipework within the building structure.

CHINLEAN SWV pipe specified by:

- Diameter
- Application area code

Nominal Size (Pipes Diameter)

This is specified by their nominal diameter or size in millimeter, the size range covers from DN 36 mm to DN 315mm (see Dimension section)

Application Area Code

All SWV pipes and fittings marked with code “B”, “BD” and “D” to indicate the application area for which they are intended as follow:

“**B**” Intended to use above ground inside the building, or for components outside the building fixed into the wall.

“**BD**” Intended for above ground use for both inside the building, or for components outside the building fixed into the wall and buried in building structures.

“**D**” For the area under and within 1m from the building where the pipes and fittings are buried in ground and are connected to the underground drainage and sewerage system.

Note: “**D**” application area is recommended to use of Underground Sewerage Pipe (MS 979.1 & MS 979.2 / BS 4660 & BS 5841) as alternative

Service Temperature

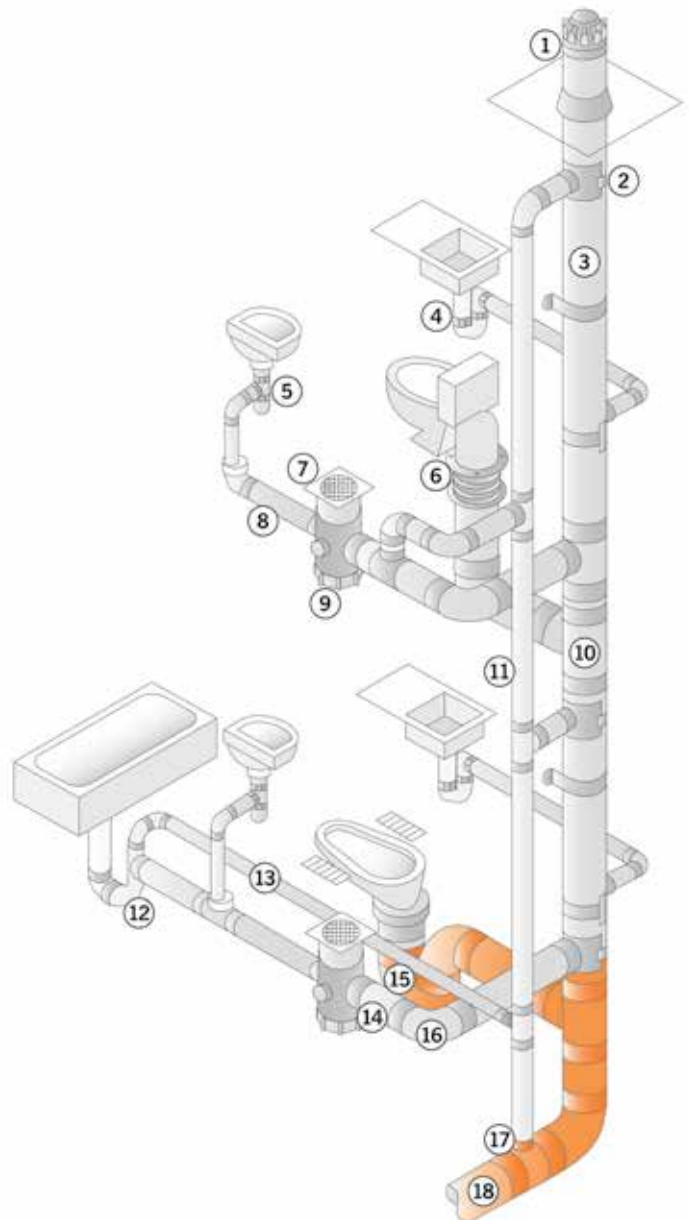
May be used to carry liquids when subjected to a continuous flow with maximum temperature of 76°C. Intermittent discharges of up to 100°C may occur, provided that duration of less than 90 seconds is observed.

Colour

The colour of pipes and fittings is classified by application area as follow:

- “**B**” code : White
- “**BD**” code: White
- “**D**” code : Brown

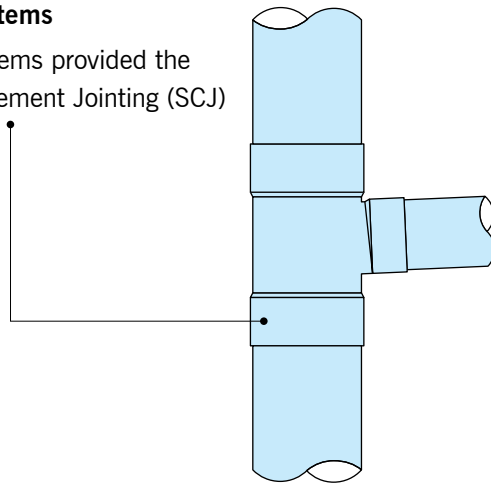
Part	Name
1	Vent Cowl
2	Boss Connector
3	Discharge Stack Pipe
4	Tubular Trap
5	Bottle Trap
6	Pipe Sleeve
7	Grating
8	Branch Discharge Pipe
9	Floor Gully Trap
10	Equal Single Branch
11	Ventilating Stack Branch
12	‘P’ Trap
13	Branch Ventilating Pipe
14	Branch Discharge Pipe
15	‘P’ Trap (‘U’ Body)
16	Swept Bend
17	Reducing Branch
18	Drain Pipe



Product Description

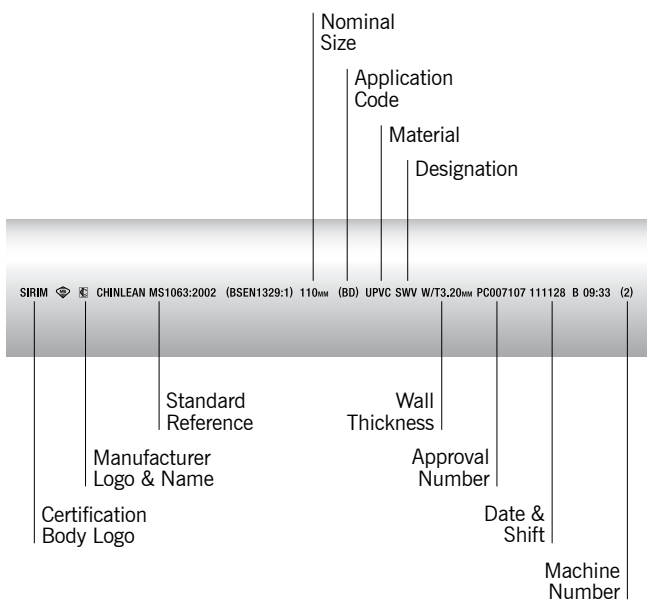
Joint Systems

SWV systems provided the Solvent Cement Jointing (SCJ)



Marking

All SWV pipes are marked by printer, the following details at approximately meter intervals. The SWV fittings has clearly and durably marked by moulded impression for each cavity of products.



RELATED STANDARD REFERENCES

- **MS 1063: 2000** – Plastics piping system for soil, ventilating and waste discharge (low and high temperature) within the building structure - PVC-u pipes and fittings
- **MS 1402-1: 2006** Code of practice for sanitary system in buildings - Design
- **BS EN 1329-1** (Revision of BS 4514 and BS 5255) – Plastics piping system for soil, ventilating and waste discharge (low and high temperature) within the building structure – PVC-u pipes and fittings
- **BS EN 12056-2: 2000** Gravity drainage system inside building – Sanitary pipework, layout and calculation

QUALITY ASSURANCE

CHINLEAN Plastic is established the Quality Management System has been complies to ISO 9001:2000 assessed by SIRIM QAS International Sdn. Bhd. to ensure quality system and quality product fulfill to the requirements. Certificate No.: **AR 2643**

CERTIFICATION

CHINLEAN SWV pipe is certified by SIRIM QAS International Sdn. Bhd. certification body of Malaysian since 1992 with certificate No.: **PC007107 (Pipes)** and **PC007109 (Fittings)**



As part of our continuous improvement, Chin Lean reserve the right to change specification without notice.



Product Range

* Other Source # 'D' application area is recommended to use of Underground Sewerage Pipes (MS979.1 & MS979.2 / BS4660 & BS5841) as alternative.

Product Description	No. of Size	Size (mm)
Pipes		
PVC-u SWV Pipe - Application Code 'B'	9	36, 43, 56, 82, 110, 160, 200, 250, 315
PVC-u SWV Pipe - Application Code 'BD' & 'D' #	6	82, 110, 160, 200, 250, 315
Fittings		
88° Swept Bend	6	36, 43, 56, 82, 110, 160
88° Swept Bend with Inspection Opening I/O	4	56, 82, 110, 160
45° Bend	9	36, 43, 56, 82, 110, 160, 200*, 250*, 315*
45° Bend with Inspection Opening I/O	4	56, 82, 110, 160
90° Bend	5	82, 110, 200*, 250*, 315*
90° WC Connecting Bend M/F	1	110
90° WC Connecting Bend M/F with Inspection Opening I/O	1	110
Equal Single Branch (88°)	9	36, 43, 56, 82, 110, 160, 200*, 250*, 315*
Equal Single Branch (88°) with Inspection Opening I/O	5	43, 56, 82, 110, 160
Reducing Branch (88°)	8	110x56, 110x82, 160x110, 200x110*, 200x160*, 250x160*, 250x200*, 315x160*
Reducing Branch (88°) with Inspection Opening I/O	3	110x56, 110x82, 160x110
2-Way Junction (88°)	3	56, 110, 200*
Reducing 2-Way Junction (88°)	1	160x110
45° 'Y' Branch	3	56, 82, 110
45° 'Y' Branch with Inspection Opening I/O	3	56, 82, 110
45° Reducing 'Y' Branch	1	160x110
45° Reducing Double 'Y' Branch	1	160x110
Straight Coupling	9	36, 43, 56, 82, 110, 160, 200*, 250*, 315*
Bush Socket Reducer M/F	7	43x36, 56x36, 56x43, 82x56, 110x56, 110x82, 160x110
Level Invert Reducer F/F	7	56x36, 82x56, 110x56, 11x82, 160x110, 200x110*, 200x160*
Concentric Reducer F/F	7	56x36, 82x56, 110x56*, 110x82, 160x110, 200x160*, 315x200*
Pipe Sleeve	4	56, 82, 110, 160
Boss Connector	5	82x56, 110x56, 110x82, 160x82, 160x110
Vent Cowl	4	56, 82, 110, 160
Floor Gully Trap	2	110x56, 110x82
'P' Trap	3	56, 82, 110
'P' Trap with vent	2	56x36, 110x56
'S' Trap	1	110
'U' Body (M/F)	1	110
'U' body with Inspection Opening I/O (M/F)	1	110
'U' Body with Vent (M/F)	1	110x56
'P' Trap ('U' Body)	1	110
'P' Trap with Inspection Opening I/O ('U' Body)	1	110
'S' Trap ('U' Body) (M/F)	1	110
'S' Trap with Inspection Opening I/O ('U' Body) (M/F)	1	110
'S' Trap with Vent ('U' Body) (M/F)	1	110x56

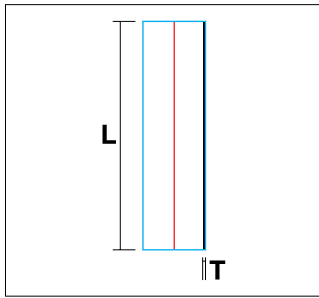
As part of our continuous improvement, Chin Lean reserve the right to change specification without notice.

Product Dimension

* Other source # This application area code is recommended to use of Underground Sewerage Pipe as (MS979.1/MS979.2) as alternative



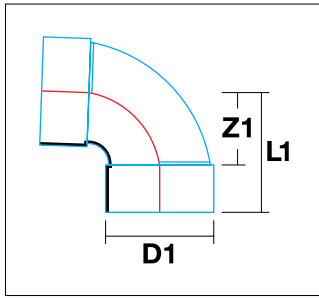
SWW Pipes



Nominal Size (DN) (mm)	Outside Diameter (D)	Wall Thickness (T) / Application area		Length (L) (m)
		'B'	'BD' & 'D'*	
36	36.2 - 36.5	3.0	-	4 / 6
43	42.8 - 43.1	3.0	-	4 / 6
56	55.8 - 56.1	3.0	-	4 / 6
82	82.4 - 82.8	3.0	3.0	4 / 6
110	110.0 - 110.3	3.2	3.2	4 / 6
160	160.0 - 160.4	3.2	4.0	4 / 6
200	200.0 - 200.5	3.9	4.9	6
250	250.0 - 250.5	4.9	6.2	6
315	315.0 - 315.6	6.2	7.7	6



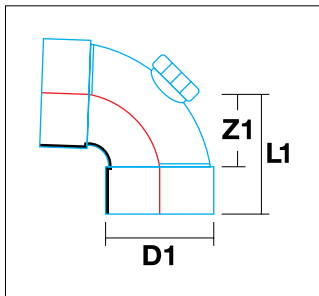
88° Swept Bend



Nominal Size (DN) (mm)	Dimension (mm)			Code
	D1	L1	Z1	
36	36.3	52	33	F32UB
43	42.9	57	35	F40UB
56	55.9	65	37	F50UB
82	82.6	125	82	F82UB
110	110.2	124	75	F110UB
160	160.2	178	120	F160UB



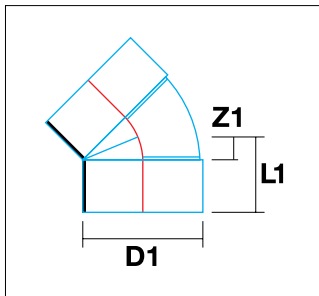
88° Swept Bend with Inspection Opening (I/O)



Nominal Size (DN) (mm)	Dimension (mm)			Code
	D1	L1	Z1	
56	55.9	65	37	F50UBD
82	82.6	125	82	F82UBD
110	110.2	124	75	F110UBD
160	160.2	178	120	F160UBD



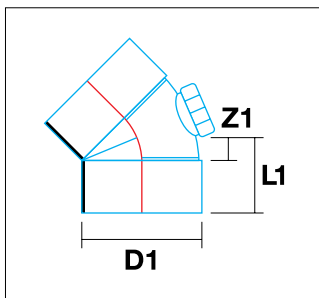
45° Bend



Nominal Size (DN) (mm)	Dimension (mm)			Code
	D1	L1	Z1	
36	36.3	28	9	F3245UB
43	42.9	32	10	F4045UB
56	55.9	41	13	F5045UB
82	82.6	62	19	F8245UB
110	110.2	72	24	F11045UB
160	160.2	93	35	F16045UB
200	200.3			F20045UB
250*	250.3			F25045UB
315*	315.3			F31545UB



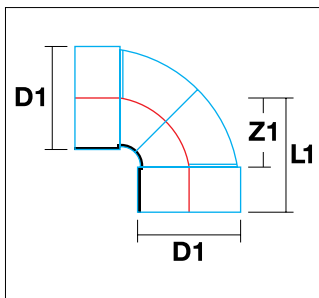
45° Bend with Inspection Opening (I/O)



Nominal Size (DN) (mm)	Dimension (mm)			Code
	D1	L1	Z1	
56	55.9	41	13	F5045UBD
82	82.6	62	19	F8245UBD
110	110.2	72	24	F11045UBD
160	160.2	93	35	F16045UBD



90° Bend



Nominal Size (DN) (mm)	Dimension (mm)			Code
	D1	L1	Z1	
82	82.6	102	52	F8290UB
110	110.2	122	73	F11090UB
200*	200.3			F200UB
250*	250.3			F250UB
315*	315.3			F315UB

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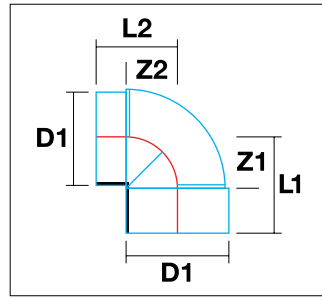


Product Dimension

* Other source



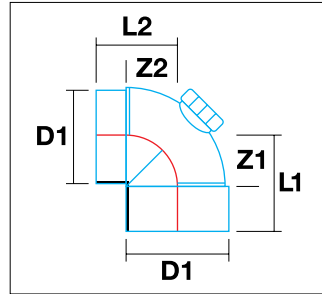
90° WC Connecting Bend M/F



Nominal Size (DN) (mm)	Dimension (mm)					Code
	D1	L1	L2	Z1	Z2	
110	110.2	104	85	56	59	F110WCCB



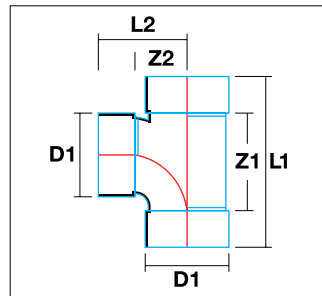
90° WC Connecting Bend M/F with Inspection Opening (I/O)



Nominal Size (DN) (mm)	Dimension (mm)					Code
	D1	L1	L2	Z1	Z2	
110	110.2	104	85	56	59	F110WCCBH



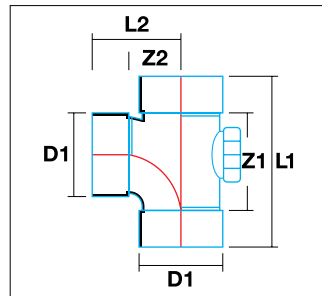
Equal Single Branch (88°)



Nominal Size (DN) (mm)	Dimension (mm)					Code
	D1	L1	L2	Z1	Z2	
36	36.3	81	50	43	30	F32UT
43	42.9	97	56	53	34	F40UT
56	55.9	126	73	70	45	F50UT
82	82.6	192	117	106	74	F82UT
110	110.2	236	137	140	89	F110UT
160	160.2	321	178	205	120	F160UT
200*	200.3					F200UT
250*	250.3					F250UT
315*	315.3					F315UT



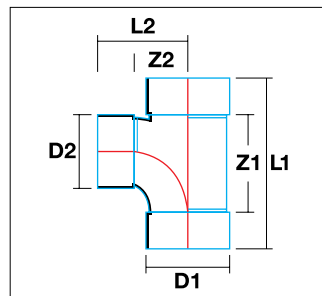
Equal Single Branch (88°) with Inspection Opening (I/O)



Nominal Size (DN) (mm)	Dimension (mm)					Code
	D1	L1	L2	Z1	Z2	
43	42.9	97	56	53	34	F40UTD
56	55.9	126	73	70	45	F50UTD
82	82.6	192	117	106	74	F82UTD
110	110.2	236	137	140	89	F110UTD
160	160.2	321	178	205	120	F160UTD



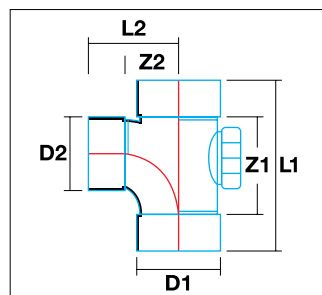
Reducing Branch (88°)



Nominal Size (DN) (mm)	Dimension (mm)						Code
	D1	D2	L1	L2	Z1	Z2	
110x56	110.2	55.9	200	94	102	65	F11050UT
110x82	110.2	82.6	200	114	102	70	F11082UT
160x110	160.2	110.2	276	176	160	118	F160110UT
200x110*	200.3	110.2					F200110UT
200x160*	200.3	160.2					F200160UT
250x160*	250.3	160.2					F250160UT
250x200*	250.3	200.3					F250200UT
315x160*	315.3	160.2					F315160UT



Reducing Branch (88°) with Inspection Opening (I/O)



Nominal Size (DN) (mm)	Dimension (mm)						Code
	D1	D2	L1	L2	Z1	Z2	
110x56	110.2	55.9	200	94	102	65	F11050UTD
110x82	110.2	82.6	200	114	102	70	F11082UTD
160x110	160.2	110.2	276	176	160	118	F160110UTD

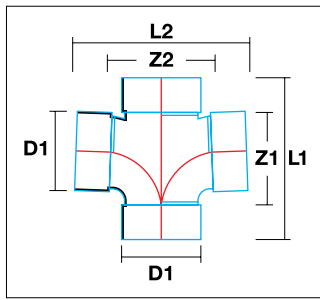
As part of our continuous improvement, Chin Lean reserve the right to change specification without notice.

Product Dimension

* Other source



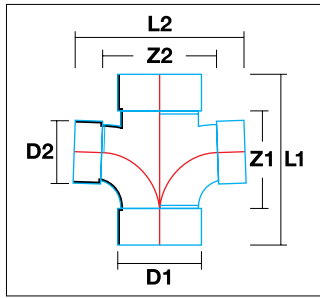
2-Way Junction (88°)



Nominal Size (DN) (mm)	Dimension (mm)					Code
	D1	L1	L2	Z1	Z2	
56	55.9	126.0	146	70	90	F502WJ
110	110.2	236.0	274	140	178	F110UCT
200*	200.3					F200UCT



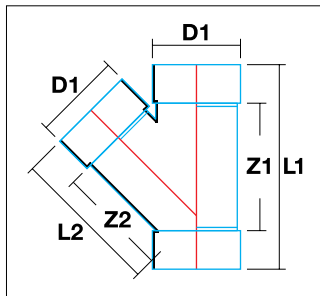
Reducing 2-Way Junction (88°)



Nominal Size (DN) (mm)	Dimension (mm)						Code
	D1	D2	L1	L2	Z1	Z2	
160x110	160.2	110.2	276	332	160	236	F1601102WY



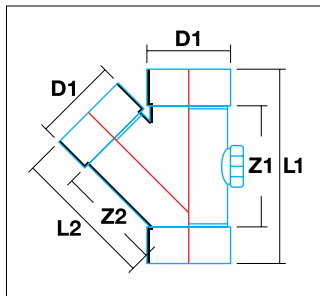
45° 'Y' Branch



Nominal Size (DN) (mm)	Dimension (mm)					Code
	D1	L1	L2	Z1	Z2	
56	55.9	136	98	80	70	F5045YT
82	82.6	202	146	116	103	F8245YT
110	110.2	256	188	160	140	F110UYT



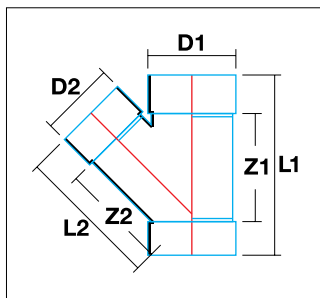
45° 'Y' Branch with Inspection Opening (I/O)



Nominal Size (DN) (mm)	Dimension (mm)					Code
	D1	L1	L2	Z1	Z2	
56	55.9	136	98	80	70	F50UYTD
82	82.6	202	146	116	103	F82UYTD
110	110.2	256	188	160	140	F110UYTD



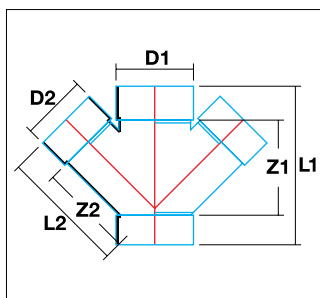
45° Reducing 'Y' Branch



Nominal Size (DN) (mm)	Dimension (mm)						Code
	D1	D2	L1	L2	Z1	Z2	
160x110	160.2	110.2	276	233	160	175	F160110YT



45° Reducing Double 'Y' Branch



Nominal Size (DN) (mm)	Dimension (mm)						Code
	D1	D2	L1	L2	Z1	Z2	
160x110	160.2	110.2	276	233	160	175	F160110DYT

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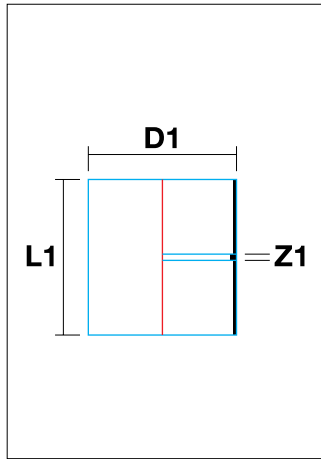


Product Dimension

* Other source



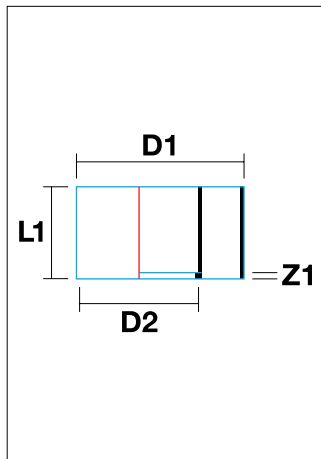
Straight Coupling



Nominal Size (DN) (mm)	Dimension (mm)			Code
	D1	L1	Z1	
36	36.3	40	2	F32US
43	42.9	47	3	F40US
56	55.9	59	3	F50US
82	82.6	90	4	F82US
110	110.2	100	4	F110US
160	160.2	120	4	F160US
200*	200.3			F200US
250*	250.3			F250US
315*	315.3			F300US



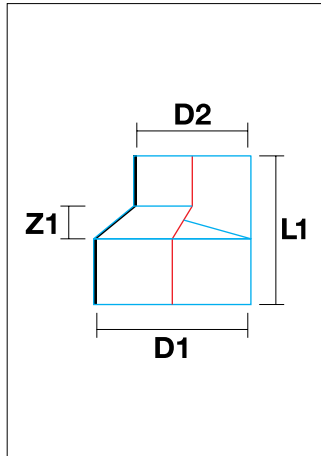
Bush Socket Reducer M/F



Nominal Size (DN) (mm)	Dimension (mm)				Code
	D1	D2	L1	Z1	
43x36	42.9	36.3	21	2	F4032UB
56x36	55.9	36.3	27	8	F5032UB
56x43	55.9	42.9	27	5	F5040UB
82x56	82.6	55.9	42	14	F8250UB
110x56	110.2	55.9	47	19	F11050UB
110x82	110.2	82.6	47	4	F11082UB
160x110	160.2	110.2	58	10	F160110UB



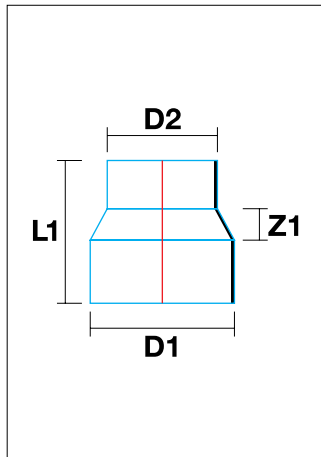
Level Invert Reducer F/F



Nominal Size (DN) (mm)	Dimension (mm)				Code
	D1	D2	L1	Z1	
56x36	55.9	36.3	62	15	F5032CIR
82x56	82.6	55.9	97	26	F8250CIR
110x56	110.2	55.9	110	34	F11050CIR
110x82	110.2	82.6	120	29	F11082CIR
160x110	160.2	110.2	137	31	F160110CIR
200x110*	200.3	110.2			F200110CIR
200x160*	200.3	160.2			F200160CIR



Concentric Reducer F/F



Nominal Size (DN) (mm)	Dimension (mm)				Code
	D1	D2	L1	Z1	
56x36	55.9	36.3	62	15	F5032US
82x56	82.6	55.9	92	21	F8250US
110x56*	110.2	55.9			F11056US
110x82	110.2	82.6	112	21	F11082US
160x110	160.2	110.2	126	20	F160110US
200x160*	200.3	160.2			F200160US
315x200*	315.3	200.3			F315200US

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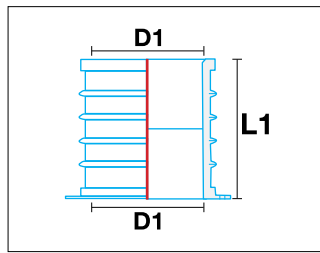


Product Dimension

* Other source # This application area code is recommended to use of Underground Sewerage Pipe as (MS979.1/MS979.2) as alternative



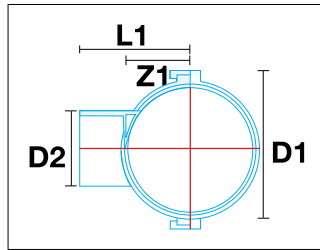
Pipe Sleeve



Nominal Size (DN) (mm)	Dimension (mm)		Code
	D1	L1	
56	55.9	109	F50PS
82	82.6	110	F82PS
110	110.2	110	F110PS
160	160.2	166	F160PS



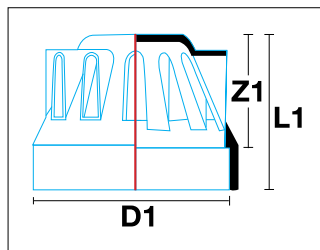
Boss Connector



Nominal Size (DN) (mm)	Dimension (mm)				Code
	D1	D2	L1	Z1	
82x56	82.6	55.9	72	43	F8250UBC
110x56	110.2	55.9	80	55	F11050UBC
110x82	110.2	82.6	94	55	F11082UBC
160x82	160.2	82.6	126	82	F16082UBC
160x110	160.2	110.2	138	82	F160110UBC



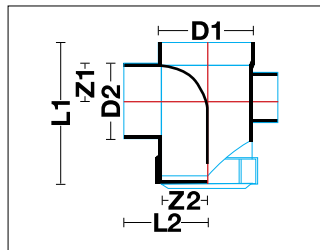
Vent Cowl



Nominal Size (DN) (mm)	Dimension (mm)			Code
	D1	L1	Z1	
56	55.9	70	45	F50UVC
82	82.6	70	45	F82UVC
110	110.2	90	65	F110UVC
160	160.2	135	85	F160UVC



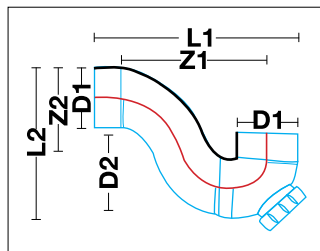
Floor Gully Trap



Nominal Size (DN) (mm)	Dimension (mm)						Code
	D1	D2	L1	L2	Z1	Z2	
110x56	110.2	55.9	176	86	44	55	F11050UFGT
110x82	110.2	82.6	176	98	45	55	F11082UFGT



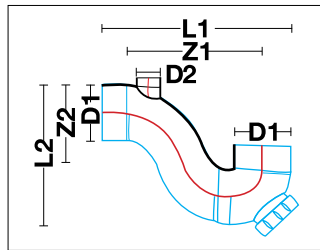
'P' Trap



Nominal Size (DN) (mm)	Dimension (mm)					Code
	D1	L1	L2	Z1	Z2	
56	55.9	233	183	174	84	F50PTR
82	82.6	427	205	332	115	F82UPTR
110	110.2	383	284	272	115	F110UPTR



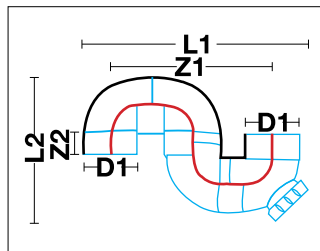
'P' Trap with vent



Nominal Size (DN) (mm)	Dimension (mm)						Code
	D1	D2	L1	L2	Z1	Z2	
56x36	55.9	36.3	233	196	174	84	F5032PTRV
110x56	110.2	55.9	383	303	272	115	F11050PTRV



'S' Trap



Nominal Size (DN) (mm)	Dimension (mm)					Code
	D1	L1	L2	Z1	Z2	
110	110.2	450	275	333	53	F110ST

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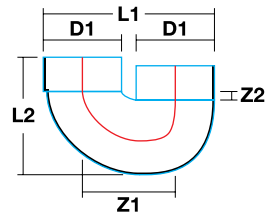


Product Dimension

* Other source



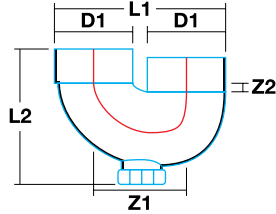
'U' Body (M/F)



Nominal Size (DN) (mm)	Dimension (mm)					Code
	D1	L1	L2	Z1	Z2	
110	110.2	250	163	137	15	F110UTB



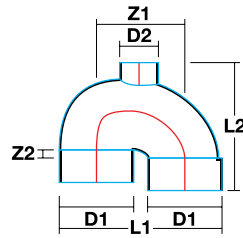
'U' Body with Inspection Opening (I/O) (M/F)



Nominal Size (DN) (mm)	Dimension (mm)					Code
	D1	L1	L2	Z1	Z2	
110	110.2	250	200	137	15	F110UTBD



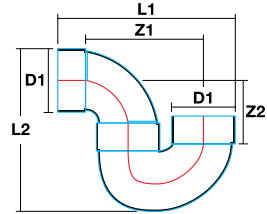
'U' Body with Vent (M/F)



Nominal Size (DN) (mm)	Dimension (mm)						Code
	D1	D2	L1	L2	Z1	Z2	
110x56	110.2	55.9	250	194	137	15	F11050UTBV



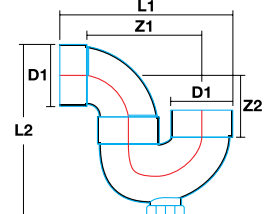
'P' Trap ('U' Body)



Nominal Size (DN) (mm)	Dimension (mm)					Code
	D1	L1	L2	Z1	Z2	
110	110.2	318	280	211	107	F110UPTB



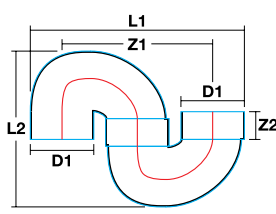
'P' Trap with Inspection Opening (I/O) ('U' Body)



Nominal Size (DN) (mm)	Dimension (mm)					Code
	D1	L1	L2	Z1	Z2	
110	110.2	318	314	211	107	F110UPTBD



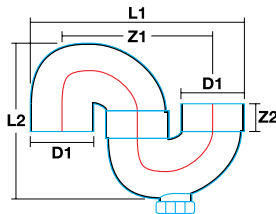
'S' Trap ('U' Body) M/F



Nominal Size (DN) (mm)	Dimension (mm)					Code
	D1	L1	L2	Z1	Z2	
110	110.2	392	262	274	50	F110USTB



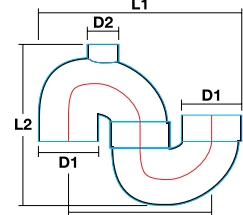
'S' Trap with Inspection Opening (I/O) ('U' Body) M/F



Nominal Size (DN) (mm)	Dimension (mm)					Code
	D1	L1	L2	Z1	Z2	
110	110.2	392	302	274	50	F110USTBD



'S' Trap Vent ('U' Body) M/F



Nominal Size (DN) (mm)	Dimension (mm)						Code
	D1	D2	L1	L2	Z1	Z2	
110x56	110.2	55.9	392	296	274	50	F110STBV

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