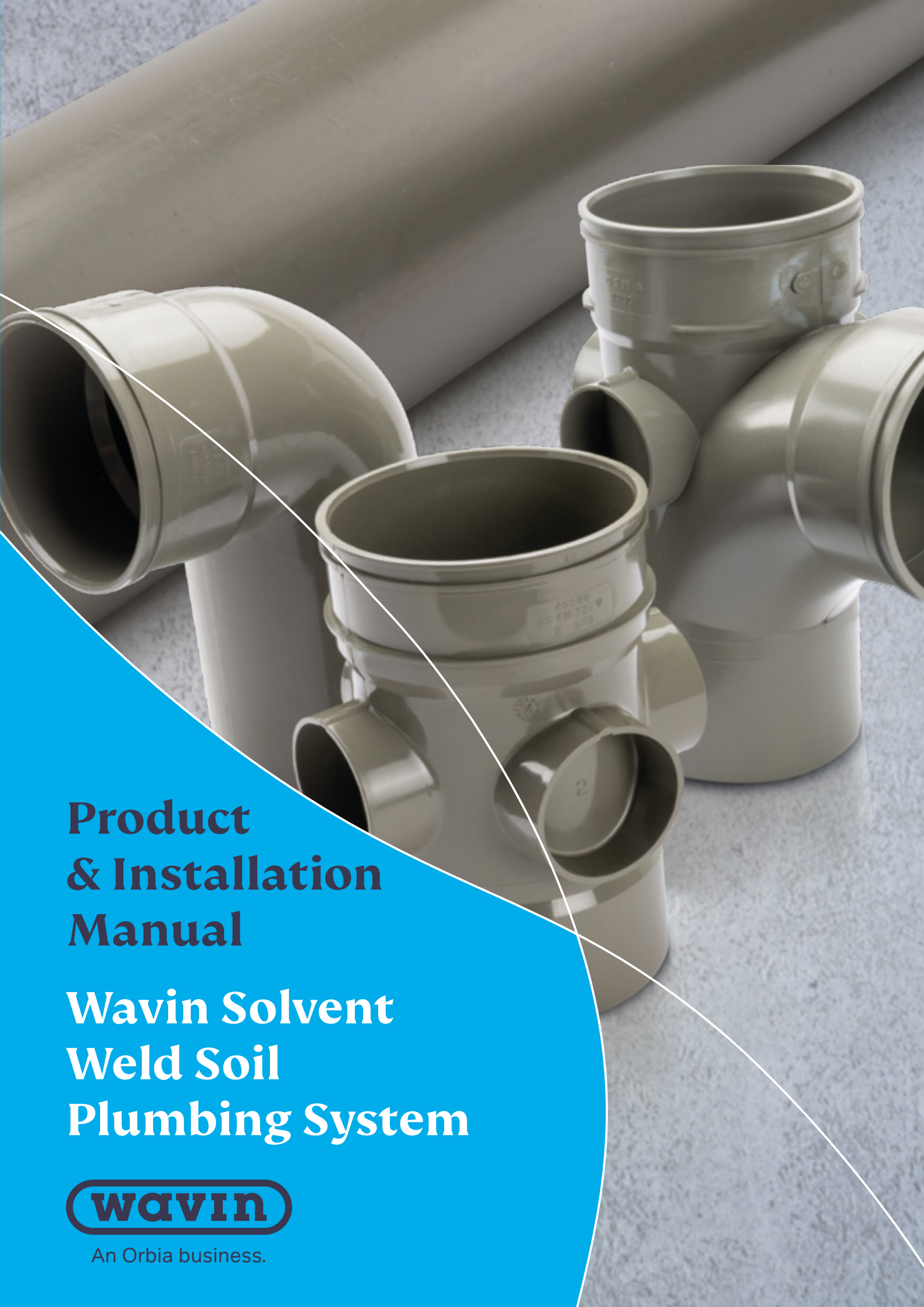


Product & Installation Manual

Wavin Solvent Weld Soil Plumbing System

wavin

An Orbia business.

Solvent Soil and Waste

Wavin Commercial

Contents

Introduction to Wavin Solvent Soil and Waste

Wavin PVC-U

Solvent Soil System

The Wavin PVC-U Solvent Soil system enables space saving and flexible installations for efficient removal of waste water. Reduced installed dimensions minimise duct space required, providing the ideal solution for multi-occupancy and flat developments, where space is a premium.

Features and Benefits

Fixed Joint

- Solvent Soil allows installers to create a permanent fixed joint using a chemical weld
- Suitable to multiple occupancy or high rise developments
- The reduced dimensions help minimise the duct space required

Ease of Installation

- A full range of fittings are available to make installation as easy as possible
- Innovative keyway system to ensure waste pipe is installed with a fall required in Approved Document H of the Building Regulations
- Removes need to accommodate a push-fit socket in tight spaces where a compact solution is needed

Sustainablilty

110mm and 160mm pipes are manufactured utilising Wavin's Recycore® Technology.

50% RECYCLED RAW MATERIAL

Next Generation Recycore Technology™

Complimentary Ranges

Wavin PVC-C Solvent Waste is available to connect sanitary objects and appliances to the soild stack.

For WC Connectors, Traps, Condensate, PP Pushfit Waste, ABS solvent weld and Overflow ranges see the Wavin Osma Soil and Waste Product and Installation Manual.

For Wavin AS+ Acoustic Soil System or Wavin HDPE, see separate product guides or our Wavin Commercial Above Ground Product Guide.

Applications

For vertical soil stacks and horizontal WC pipe in buildings where space is at a premium and solvent weld is the preferred connection method:

- Apartment buildings
- Hotels
- Warehouses
- Retail developments
- Halls of residence
- Hospitals
- Offices

Systems Overview
Wavin Solvent Soil and Waste

Wavin PVC-U Solvent Soil System

- Wide selection of single, double and unequal branches with short boss and manifold options available
- Available in 110 and 160mm diameters
- Colour: Olive
- 110/160mm fittings in PVC-U to BS EN 1329-1:2000
- 110 /160mm pipe is manufactured with Wavin Recycore technology – a multi-layer construction with over 50% recycled material in solid core
- 110 /160mm pipe sizes are BS EN 1453-1:2000 kitemarked

Next Generation Recycore Technology™

Table 1: PVC-U Solvent Soil system: Pipe Dimensions (mm) and Weights (kg/m)

Nominal Size (mm)	Outside Diameter		Wall Thickness		Average
	Min	Max	Min	Max	Weight (kg/m)
110	110.0	110.3	3.2	3.5	1.64
160	160.0	160.4	3.2	3.8	2.44

Table 2: PVC-U Solvent Soil system: Socket Dimensions (mm)

Nominal Size (mm)	Internal Depth			Maximum Outside Diameter		
	Ring-Seal	Solvent Weld Without expansion cap		Ring-Seal	Solvent Weld Without expansion cap	
110	65	54	65	132	125	125
160	80	63	76	192	176	176

N.B. Dimensions are indicative only.

Wavin PVC-C Solvent Weld Waste System

Connectors for all WC configurations, including WC Manifold Branches, designed to connect up to 8 WCs onto 1 float:

- 32, 40 and 50mm pipes and fittings
- Colour choice: Black, White and Olive
- Fire retardant properties
- Designed to withstand higher temperatures. The chlorinated PVC material has heat resistant properties
- UV resistant: suitable for exterior as well as interior installation
- Manufactured in PVC-C Chlorinated poly (vinyl chloride) to BS EN 1566-1: 2000

Table 3: PVC-C Solvent Weld Waste system: Pipe Dimensions (mm) and Weights (kg/m)

Nominal Size (mm)	DN/OD	Outside Diameter		Wall Thickness		Average
		Min	Max	Min	Max	Weight (kg/m)
32	36	36.1	36.5	1.8	2.2	0.29
40	43	42.7	43.1	1.9	2.3	0.36
50	55	55.7	56.1	2.0	2.4	0.50

Table 4: PVC-C Solvent Weld Waste system: Socket Dimensions (mm)

Nominal Size (mm)	DN/OD	Internal Depth (minimum)	Maximum Outside Diameter
32	36	21	41
40	43	23	48
50	55	28	61

Estimating Data
Wavin Solvent Soil and Waste

Estimating Data

The following data is provided to help estimation of quantities required for pipe support and jointing.

Pipe Support

Pipes should be supported at the maximum centres shown opposite in Table 5.

Offset Bends

Pipe Brackets should also be fitted around the Offset Bend or directly below.

Table 5: Maximum Pipe Support Centres

Pipe Size (mm)	Centres (m)	
	Vertical	Horizontal
21.5	0.5	0.5
32	1.2	0.5
40	1.2	0.5
50	1.2	0.6
82	2	1
110	2	1
160	2	1.2

Jointing Material Allowances

Lubricant Allowance

For push-fit ring-seal joints (approximate figures).

Table 6: Lubricant Usage Guide

Description	Part No.	Nominal Pipe Sizes (mm) No. of Joints					
		32	40	50	82	110	160
Silicone Lubricant 50g tube	4S391G	44	37	20	16	9	4

Degreasing Cleaner/Solvent Cement Allowances

For solvent weld joints (approximate figures).

Table 7: Cleaner/Solvent Cement Usage Guide

Description	Part No.	Nominal Pipe Sizes (mm) No. of Joints						
		21.5	32	40	50	82	110	160
Degreasing Cleaner No.1 250ml can	4S380G	240	140	90	66	50	32	20
Solvent Cement No.2 250ml can	4S384G	180	90	60	40	16	11	6
Solvent Cement No.2 500ml can	4S385G	360	180	120	80	32	22	12

Product Selector
Wavin Solvent Soil and Waste

Introduction to Product Selector

The product selector gives details on the individual products in the following Wavin ranges:

- Wavin PVC-U Solvent Soil
- Wavin PVC-C Solvent Weld Waste

For WC Connectors, Traps, Condensate and Overflow ranges see the Wavin Osma Soil and Waste Product and Installation Manual.

Please refer to separate brochures for further information on other Wavin Industrial and Commercial Systems ranges such as Wavin AS+ Acoustic Soil System, Wavin HDPE and the K5/ K1 Tigris Multilayer Press-fit Plumbing System.

Abbreviations

The following abbreviations are used in the product selector section to denote fittings or pipe type (also used in the Wavin price list). However, most products also have a bullet point detailing the product type i.e. two push-fit ends.

	Key	
	P/E:	Pipe with both ends plain or fittings with one plain end and one special end
	D/SW:	Fittings with solvent sockets at all ends
	SW/S:	Fittings with one or more solvent sockets and one plain or special end
	S/SW:	Fittings with one or more push-fit (ring-seal) sockets but always one solvent socket
	S/S:	Pipe and fittings with one or more push-fit (ring-seal) sockets, but always one plain or special end
	D/S:	Fittings with push-fit (ring-seal) sockets at all ends

Product Details

Wavin PVC-U Solvent Soil

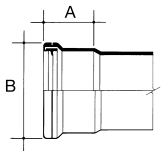
Pipe

Plain Ended Pipe

- **110/160mm sizes are made with Wavin Recycore technology – a multi-layer construction with over 50% recycled material in solid core**
- **110/160 mm pipe sizes are BS EN 1453-1:2000 kitemarked but have exactly the same performance characteristics as BS EN 1329-1:2000**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Length (m)
110	4S073E	●	3
110	4S074E	●	4
160	6S074E	●	4



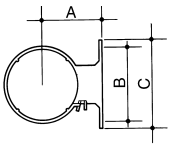
Socketed Pipe

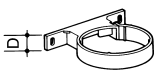
- **One plain end, one ring-seal socket**
- **110/160mm sizes are made with Wavin Recycore technology – a multi-layer construction with over 50% recycled material in solid core**
- **110/160 mm pipe sizes are BS EN 1453-1:2000 kitemarked but have exactly the same performance characteristics as BS EN 1329-1:2000**

Material: PVC-U, with Rubber seals

Nominal Size (mm)	Part Number	Colour Option	Length (m)	Dimensions (mm) A	(O/D) B
110	4S043E	●	3	65	132
110	4S044E	●	4	65	132
160	6S043E	●	3	88	191

Brackets



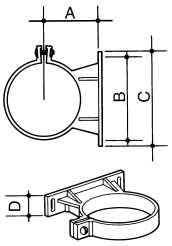


Pipe Bracket

- **For support centres, see page 4**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C	D	Fixing Hole
110	4S082E	●	94	120	140	25	6.5 dia
160	6S082E	●	123	175	200	32	8 dia



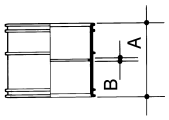
Socket Bracket

- **Position in the recessed area adjacent to the sealing-ring housing**
- **For support centres, see page 4**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C	D	Fixing Hole
110	4S083E	●	94	120	140	25	6.5 dia

Sockets

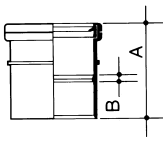


D/SW Double Socket

- **Solvent weld socket at each end**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B
110	4S104E	●	98	2
160	6S104E	●	119	3

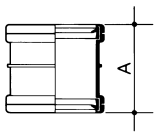


S/SW Single Socket

- **One solvent weld socket and one push-fit ring-seal socket**
- **Used for creating a fixed ring-seal joint on a plain-ended pipe or fitting, or where an expansion joint is required to accommodate thermal movement**

Material: PVC-U, with Rubber seals

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B
110	4S124E	●	105	2
160	6S124E	●	135	2



D/S Double Socket – for repairs

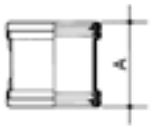
- **Push-fit ring-seal socket at each end**
- **Used as a slip coupler for making repairs**

Material: PVC-U, with Rubber seals

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A
110	4S105E	●	111
160	6S105E	●	145

Product Details

Wavin PVC-U Solvent Soil



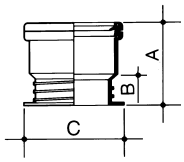
D/S Acoustic Socket

- **Push-fit ring-seal socket at each end**
- **For acoustic performance and built in allowance for thermal expansion**
- **Can be used as an alternative to 4S124E**

Material: PVC-U, with Rubber seals

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A
110	4S125E	●	133

Connector



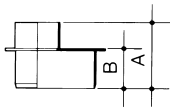
S/S Connector to Cast-Iron or Clay Drain Socket

- **Connector to BS 1211 or BS 437 cast-iron socket or BS 65 clay drain socket**

Material: PVC-U, with Rubber seals

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4S107E	●	121	51	134

Reducers

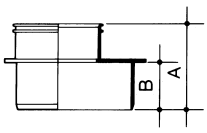


SW/S Reducer

- **Spigot connects to 110mm PVC-U solvent weld socket to BS EN 1329/ BS EN 1453**
- **Socket connects to 50mm ABS or PVC-C solvent weld pipe to BS EN 1455-1/ BS EN 1566-1**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B
110x50	4S496E	●	89	50

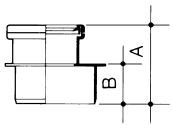


SW/S Reducer

- **Spigot connects to 160mm PVC-U solvent weld socket to BS EN 1329/ BS EN 1453**
- **Solvent weld socket connects to 110mm PVC-U pipe to BS EN 1329/ BS EN 1453**

Material: PVC-U

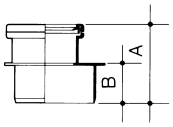
Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B
160x110	6S499E	●	117	65



S/S Reducer

Material: PVC-U, with Rubber seals

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B
110x50	4S096E ♢	●	103	53

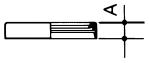


S/S Reducer

Material: PVC-U, with Rubber seals

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B
110x82	4S095E ♢	●	103	53

Expansion Cap



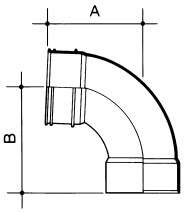
Expansion Cap

- **With integral ring-seal**
- **Converts Wavin Solvent Weld Soil sockets to push-fit expansion sockets**
- **See Design Guide for advice on accommodating thermal movement**

Material: PVC-U, with Rubber seals

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A
110	4S416E	●	22
160	6S416E	●	27

Bends

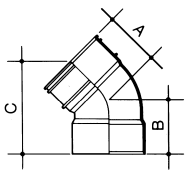


D/SW Bend – 87.5°

- **Two solvent weld sockets**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B
110	4S461E* ♢	●	152	166
160	6S461E* ♢	●	231	232



D/SW Bend – 45°

- **Two solvent weld sockets**

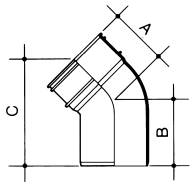
Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4S463E* ♢	●	87	87	148
160	6S463E* ♢	●	128	111	204

*can be used in conjunction with expansion cap (4S416E/6S416E) to create push-fit ring soil socket

Product Details

Wavin PVC-U Solvent Soil

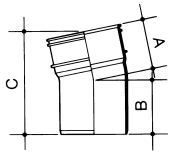


SW/S Bend – 45°

- **One plain end and one solvent weld socket**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4S263E*	●	87	105	167

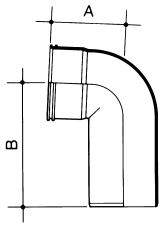


SW/S Bend – 11.25°

- **One plain end and one solvent weld socket**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4S268E*	●	75	88	162

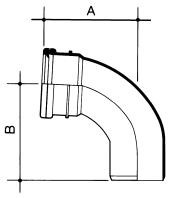


SW/S Long-Tail Bend – 87.5°

- **One plain end and one solvent weld socket**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B
110	4S260E*	●	115	195



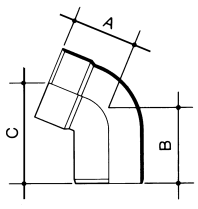
S/S Bend – 87.5°

- **One plain end and one push-fit ring-seal socket**

Material: PVC-U, with Rubber seals

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B
110	4S161E	●	162	160

Offset Bends



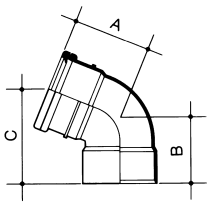
SW/S Offset Bend – 67.5°

- **One plain end and one solvent weld socket**
- **Minimum achievable offsets: 137mm**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4S435E*	●	99	105	143

*can be used in conjunction with expansion cap (4S416E/6S416E) to create push-fit ring soil socket

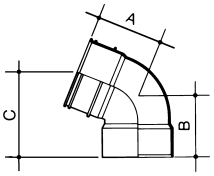


S/SW Offset Bend – 67.5°

- **One solvent weld socket and one push-fit ring-seal socket**
- **Minimum achievable offsets: 137mm**

Material: PVC-U, with Rubber seals

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4S440E*	●	110	99	140



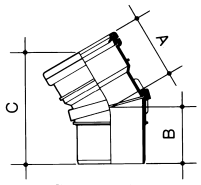
D/SW Offset Bend – 67.5° (Top)

- **Two solvent weld sockets**
- **Minimum achievable offsets: 196mm**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4S450E*	●	108	102	123

Adjustable Bend



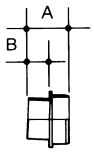
Adjustable Bend – 30°

- **One plain end and one push-fit ring-seal socket**
- **Variable angle up to 30°**
- **Rotate segments to achieve required change of direction (flow arrow on socket indicates orientation of fitting)**
- **BBA certificated (Certificate No. 89/2174)**

Material: Polypropylene, with Rubber seals

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4S173E	●	97	90	180

Boss Socket Adaptors



SW/S Solvent Weld Boss Adaptor

- **Suitable for all Wavin Soil fittings incorporating boss socket positions**
- **Connects to 32mm [1¼"], 40mm [1½"] or 50mm [2"] solvent weld plastic pipe to BS EN 1455-1/BS EN 1566-1**
- **Horizontal adaptors have an inbuilt 2.5° fall**

Material: PVC-U

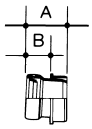
Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B
32	2S298E	●	41	20
40	2S299E	●	45	24
50	2S403E	●	53	30

*can be used in conjunction with expansion cap (4S416E/6S416E) to create push-fit ring soil socket

Product Details

Wavin PVC-U Solvent Soil

Boss Adaptors



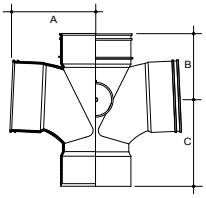
S/S Ring-Seal Boss Adaptor

- **Suitable for all Wavin Soil fittings with boss socket positions**
- **Connects to 32mm [1¼"], 40mm [1½"] or 50mm [2"] plastic pipe to BS EN 1451-1/BS EN 1455-1/BS EN 1566-1, or to copper pipe manufactured to BS 659 or BS 2871**
- **Horizontal adaptors have an inbuilt 2.5° fall**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B
32	2S398E ▽	●	50	27
40	2S399E ▽	●	53	30
50	2S402E ▽	●	70	52

Branches

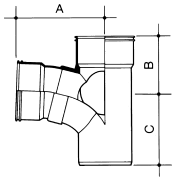


D/SW Double 2-Boss Branch – 87.5°

- **Four solvent weld sockets**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4S430E* ▽	●	140.5	110	144.5

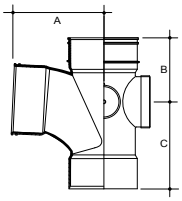


SW/S Corner Branch – 87.5°

- **One plain end and three solvent weld sockets**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4S491E* ▽	●	179	113	144



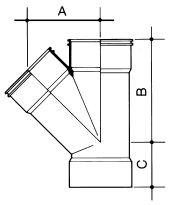
D/SW 2-Boss Access Branch – 87.5°

- **Three solvent weld sockets**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4S493E* ▽	●	159	112	152

*can be used in conjunction with expansion cap (4S416E) to create push-fit ring soil socket

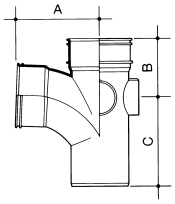


D/SW Single Branch – 45°

- **Three solvent weld sockets**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4S410E*	●	136	192	85

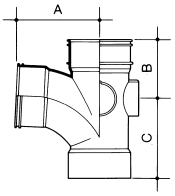


SW/S Single Branch – 87.5°

- **One plain end and two solvent weld sockets**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4S290E*	●	159	112	152

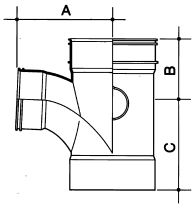


D/SW Single Branch – 87.5°

- **Three solvent weld sockets**
- **Three closed boss socket positions on 110mm fitting**
- **160mm fitting has no bosses**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4S490E*	●	159	112	152

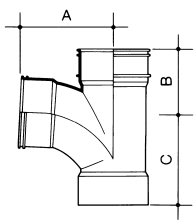


D/SW Unequal Single Branch – 87.5°

- **Two 160mm solvent weld sockets**
- **One 110mm solvent weld socket on the branch**
- **Two closed boss socket positions**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
160	6S498E*	●	167	130	155



D/SW Single Branch – 87.5°

- **Three solvent weld sockets**

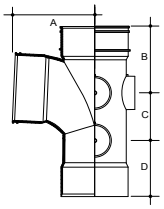
Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
160	6S490E*	●	222	161	240

*can be used in conjunction with expansion cap (4S416E) to create push-fit ring soil socket

Product Details

Wavin PVC-U Solvent Soil



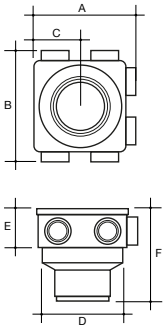
D/SW Single 5-Boss Branch

- **Three solvent weld sockets**
- **110mm branch**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C	D
110	4S495E*	●	140.5	116.5	83.5	97.5

Manifolds

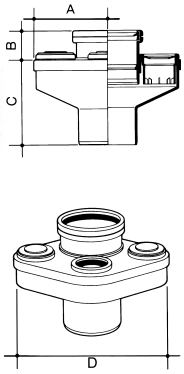


SW/S 6 Boss Manifold

- **6 boss connection points (No boss adaptors required)**
- **Dual 40/50mm solvent weld connection**
- **Compact design, 163mm body sits easily into 200mm drilled or formed hole**
- **Branch low in fitting: 132mm from centreline of branch horizontal inlet to 50mm spigot invert**
- **Horizontal instead of vertical waste connection – no upstanding bends required**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C	D	E	F
110	4S597E	●	204	222	94	163	79	184

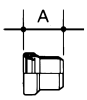


S/S Soil Manifold

- **One plain end and one push-fit ring-seal socket**
- **Permits up to three 50mm connections to be made at floor level**
- **Complies with BS EN 12056-2:2000 clause ND. 3.3.2**
- **Make connections using 2CS354 (below), 2CS355 or 2CS356**
- **Minimum installation aperture: 240mm square**

Material: PVC-U, with Rubber seals

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C	D
110	4S595E	●	138	55	160	275



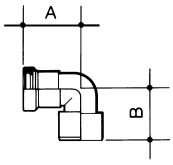
All-Fit Reducer – 40:32mm

- **Connects to 32mm plastic pipe to BS EN 1451-1/BS EN 1455-1/ BS EN 1566-1, or to copper pipe manufactured to BS 659 or BS 2871**
- **Use with 2S355W (below) when a bend is required**

Material: Polypropylene

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A
40	4Z124W	○	54

*can be used in conjunction with expansion cap (4S416E) to create push-fit ring soil socket

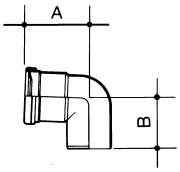


All-Fit Reduction Bend – 50:40mm

- **Connects to 40mm plastic pipe to BS EN 1451-1/BS EN 1455-1/ BS EN 1566-1, or to copper pipe manufactured to BS 659 or BS 2871**

Material: Polypropylene

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B
50	2S355W	○	70	65



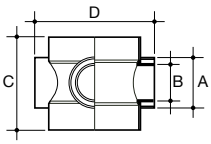
All-Fit 90˚ Spigot Bend – 50mm

- **Connects to 50mm plastic pipe to BS EN 1451-1/BS EN 1455-1/ BS EN 1566-1, or to copper pipe manufactured to BS 659 or BS 2871**

Material: ABS

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B
50	2S356W	○	79	64

Bossed Pipes

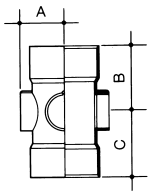


D/SW Short 3-Boss Pipe

- **Three closed boss socket positions for use with the appropriate Boss Socket Adaptor (pages 11-12)**
- **Three closed 40mm [1½"] spigot tail positions also allow for direct connection of 40mm [1½"] solvent weld sockets**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C	D
110	4S588E	●	56	43	124	74



D/SW Bossed Pipe

- **Two solvent weld sockets**
- **Three closed boss socket positions and one open to receive appropriate Boss Socket Adaptor (pages 11-12)**

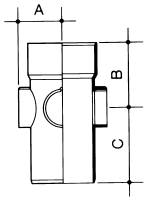
Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4S586E*	●	70	104	115

*can be used in conjunction with expansion cap (4S416E) to create push-fit ring soil socket

Product Details

Wavin PVC-U Solvent Soil

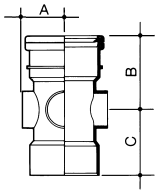


SW/S Bossed Pipe

- **One plain end and one solvent weld socket**
- **Three closed boss socket positions and one open to receive appropriate Boss Socket Adaptor (pages 11-12)**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4S585E*	●	70	100	119

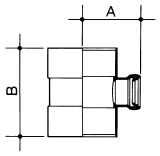


S/SW Bossed Pipe

- **One plain end and one push-fit ring-seal socket**
- **Three closed boss socket positions and one open to receive appropriate Boss Socket Adaptor (pages 11-12)**

Material: PVC-U, with Rubber seals

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4S590E	●	70	103	116



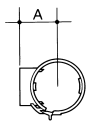
D/SW Bossed Pipe (Solvent Weld)

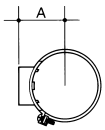
- **Connects to 32mm [1¼"] or 40mm [1½"] plastic pipe to BS EN 1451-1/BS EN 1455-1/BS EN 1566-1, or to copper pipe manufactured to BS 659 or BS 2871**
- **Two solvent weld sockets**
- **One push-fit socket position**

Material: PVC-U, with Rubber seals

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110x32	4S483E	●	95	87	123
110x40	4S484E	●	110	99	140

Strap Boss





Strap Boss

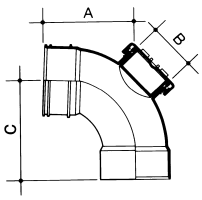
- **For making side connections on BS EN 1329 plastic pipe after construction**
- **Use in conjunction with Boss Socket Adaptor (pages 11-12)**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A
110	4S319E	●	77

*can be used in conjunction with expansion cap (4S416E) to create push-fit ring soil socket

Access Fittings

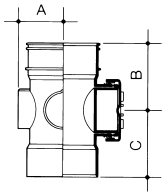


D/SW Access Bend – 87.5°

- **Two solvent weld sockets**
- **Fitted with screwed access cover**

Material: PVC-U, with Rubber seals

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4S469E*	●	152	80	166

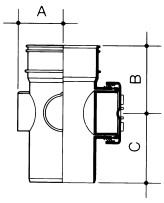


D/SW 3-Boss Access Pipe

- **Two solvent weld sockets**
- **Fitted with screwed access cover**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4S474E*	●	70	104	115



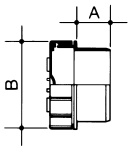
SW/S Bossed Access Pipe

- **One plain end and one solvent weld socket**
- **Three closed boss socket positions**
- **Fitted with screwed access cover**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4S574E*	●	70	100	119
160	6S474E*	●	124	131	150

Plugs



P/E Access Plug

- **Fits into a solvent weld socket to provide an access point**
- **Fitted with screwed access cover**

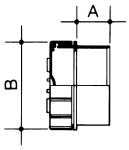
Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B
110	4S292E	●	50	132
160	6S292E	●	58	188

*can be used in conjunction with expansion cap (4S416E/6S416E) to create push-fit ring soil socket

Product Details

Wavin PVC-U Solvent Soil

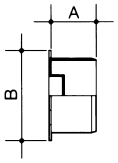


SW/S Access Plug

- **Glues over a pipe spigot to provide an access point**
- **Fitted with screwed access cover**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B
110	4S492E ♆	●	50	137



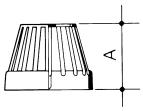
P/E Socket Plug

- **For use as a blanking plug only**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B
110	4S296E ♆	●	54	132

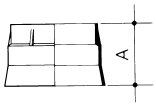
Terminal Fittings



Balloon Grating

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A
110	4S302E	●	90
160	6S302E ♆	●	160

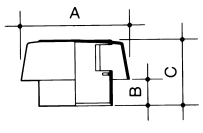


Weathering Collar

- **Used to maintain a watertight seal between pipe and traditional lead or aluminium flashing**
- **To be solvent welded to pipe using Solvent Cement Filler**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A
110	4S300E	●	86



SW/S Vent Cowl

- **Provides an alternative weather-proof termination for soil and vent pipe, or outlet for a mechanical-ventilation system**
- **Can be used in a vertical or horizontal position**

Material: PVC-U

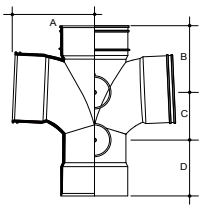
Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4S310E ♆	●	172	40	100

Product Details

Wavin Solvent Soil Problem Solvers

The following 110mm fittings are designed to assist installers in tight situations, e.g. inside a narrow duct.
Please note, the boss adaptors listed on pages 20 and 21 are only compatible with the four 110mm fittings shown below.

Double Branches

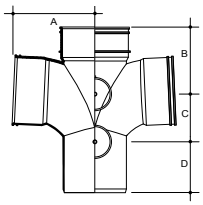


D/SW Double 4-Boss Branch – 87.5°

- **Four solvent weld sockets**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4CS832SE*	●	140.5	16.5	83.5



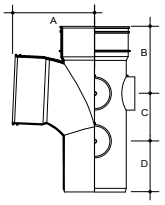
SW/S 4-Boss Branch – 87.5°

- **One plain end and three solvent weld sockets**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
110	4CS834SE*	●	140.5	116.5	83.5

Single Branch



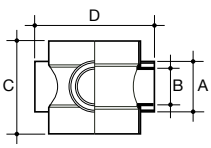
SW/S Single 5-Boss Branch – 87.5°

- **One plain end and two solvent weld sockets**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C	D
110	4CS895SE*	●	140.5	16.5	83.5	89

Bossed Pipe



D/SW Short 3-Boss Pipe

- **Three closed boss socket positions for use with the appropriate Boss Socket Adaptor (pages 20-21)**
- **Three closed 40mm [1½"] spigot tail positions also allow for direct connection of 40mm [1½"] solvent weld sockets**

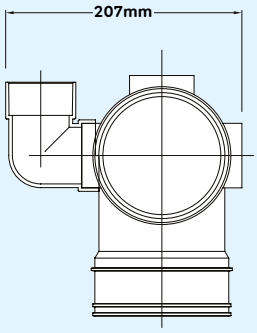
Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C	D
110	4CS588SE	●	56	43	124	74

*can be used in conjunction with expansion cap (4S416E) to create push-fit ring soil socket

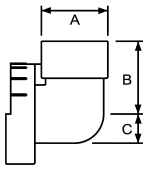
Product Details

Wavin Solvent Soil Problem Solvers



With Wavin PVC-U Solvent Soil: 207mm – enables 68mm reduction, approximately 25% space saving

Boss Adaptors

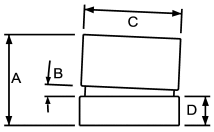


Boss Adaptor 90° – Solvent Weld

- **Adjustable fall angles, adaptor prevents negative fall**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
40	2CS812SE	●	48.5	52	21.5
50	2CS813SE	●	61.5	64.5	28

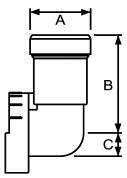


Boss Adaptor Straight – Solvent Weld

- **Keyway locks adaptors into required 2.5° fall**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B (deg)	C	D
32	2CS814SE	●	47	2.5°	41.5	18
40	2CS815SE	●	50	2.5°	48.5	18
50	2CS816SE	●	57	2.5°	61.5	18



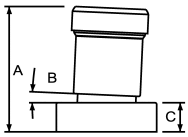
Boss Adaptor 90° – Push-fit

- **Adjustable fall angles, adaptor prevents negative fall**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
40	2CS802SE	●	55.5	83.5	21.5

Note: The boss adaptors listed in this section are designed to fit the 4CS895SE; 4CS832SE; 4CS834SE; 4CS588SE and are not compatible with other bossed fittings in the Wavin Solvent Soil range.



Boss Adaptor Straight – Push-fit

- **Keyway locks adaptors into required 2.5° fall**

Material: PVC-U

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B (deg)	C
32	2CS804SE	●	78.5	2.5°	18
40	2CS805SE	●	82	2.5°	18

Product Details

Wavin PVC-C Solvent Weld Waste

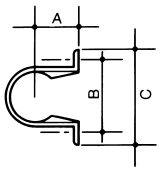
Pipe

Plain-Ended Pipe

Material: PVC-C

Nominal Size (mm)	Part Number	Colour Option	Length (m)
32	4M073	● ● ○	3
40	5M073	● ● ○	3
50	2M073	● ● ○	3

Bracket



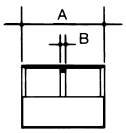
Pipe Bracket

- **For support centres, see page 4**

Material: ABS

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
32	4M081	● ● ○	31	67	85
40	5M081	● ● ○	34	73	92
50	2M081	● ● ○	58	82	102

Sockets

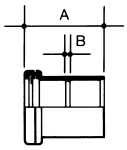


Double Socket

- **For connecting lengths of PVC-C pipe**

Material: PVC-C

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B
32	4M104	● ● ○	42	2
40	5M104	● ● ○	48	2
50	2M104	● ● ○	68	2



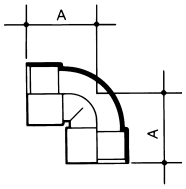
Expansion Socket

- **For creating an expansion joint where provision for thermal movement is required.**
- **Solvent weld socket and push-fit ring-seal socket**
- **Push-fit socket connects to 32mm [1¼"], 40mm [1½"] or 50mm [2"] pipe to BS EN 1455-1 and BS EN 1566-1**
- **Also connects to copper pipe to BS 659 and BS 2871**

Material: PVC-C

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B
32	4M124	● ○	64	3
40	5M124	● ○	65	3
50	2M124	● ○	72	3

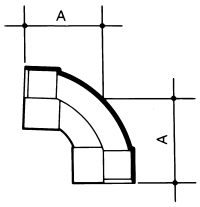
Bends



Knuckle Bend – 90°

Material: PVC-C

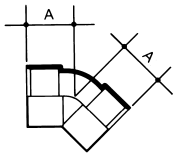
Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A
32	4M160	● ● ○	40
40	5M160	● ● ○	52
50	2M160	● ● ○	60



Bend – 87.5°

Material: PVC-C

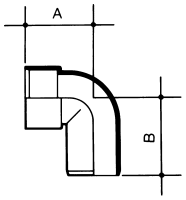
Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A
32	4M161	● ● ○	47
40	5M161	● ● ○	58
50	2M161	● ● ○	72



Bend – 45°

Material: PVC-C

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A
32	4M163	● ● ○	31
40	5M163	● ● ○	43
50	2M163	● ● ○	48

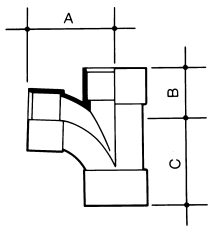


Spigot Bend – 90°

Material: PVC-C

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B
32	4M260	● ● ○	49	53
40	5M260	● ● ○	51	91
50	2M260	● ● ○	63	96

Tee



Tee – 87.5°

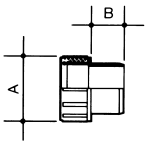
Material: PVC-C

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B	C
32	4M190	● ● ○	47	43	51
40	5M190	● ● ○	56	51	59
50	2M190	● ● ○	67	62	68

Product Details

Wavin PVC-C Solvent Weld Waste

Plug



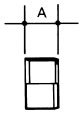
P/E Access Plug

- **Fits into a solvent weld socket to provide an access point**
- **Fitted with screwed access cover**
- **See Design and Installation Guide and BS EN 12056:2000 regarding provision of access**

Material: PVC-C

Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A	B
32	4M292	● ● ○	43	20
40	5M292	● ● ○	51	22
50	2M292	● ● ○	63.5	29

Reducer



Reducer

- **Fits inside a 40mm [1½"] solvent weld socket to BS EN 1455-1 and BS EN 1566-1**
- **Allows connection of a 32mm [1¼"] waste pipe to either 40mm [1½"] or 50mm [2"] pipe**
- **Also allows a 40mm [1½"] pipe to be connected to a 50mm [2"] pipe**

Material: PVC-C

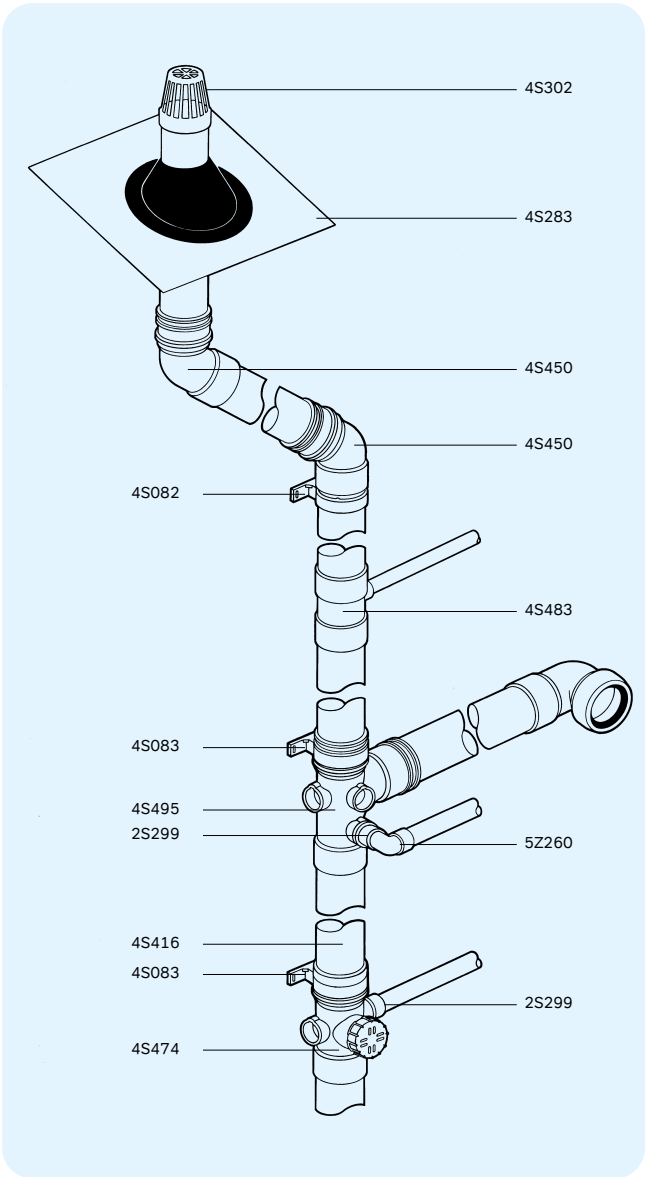
Nominal Size (mm)	Part Number	Colour Option	Dimensions (mm) A
40x32	5M455	● ● ○	23
50x32	2M458	● ● ○	30
50x40	2M456	● ● ○	30

Note: For for all push-fit ranges and ancillaries, please refer to the Wavin Osma Soil and Waste Product and Installation Manual.

Design
Wavin Solvent Soil and Waste

Typical Assembly

Figure 1: Typical stack assembly – Solvent Weld system



Applications

General Principles

Wavin Soil and Waste systems are designed to convey soil drainage and waste safely away from appliances to a soil stack or drain. The systems are suitable for above ground sanitary fittings and appliances in domestic, commercial and public buildings. However, special requirements may apply to some trade wastes including:

- High temperature and chemical effluent
- Discharges from hospitals and laboratories

For maximum operating temperatures, see Materials: Properties and Performance, page 38.

Pipe Sizing

Soil Systems

Stack

The internal diameter of a discharge stack should not be less than that of the largest trap or appliance discharging into it.

EXAMPLE: If a WC trap diameter is 110mm, the discharge stack must be minimum diameter 110mm.

Vent

Dry sections of vent pipe should typically have the same internal diameter as the discharge stack. However, for 1- or 2-storey houses, the dry section may be 75mm diameter without affecting performance.

Waste Systems

The internal diameter of the waste pipe should not be less than that of the largest trap or appliance discharging into it. Minimum tubular trap sizes are given in Table 8 below.

Combined waste systems

Waste pipe diameters should be increased at the point where waste from two appliances meet.

Table 8: Minimum Tubular Trap Sizes

Type of Appliances	Size of Trap
Wash Basin	32
Bidet	32
Sink	40
Bath	40
Shower	40
Urinal (bowl)	40
Urinal (slabs 1-7)	65
Washing Machine	40

Design
Wavin Solvent Soil and Waste

Maximum Pipe Runs

Waste Systems

The maximum recommended pipe run from trap to stack, serving single or combined appliances, is as follows:
– 3m for 40mm pipe
– 4m for 50mm pipe

If the pipe run exceeds the recommended maximum lengths above, an increased risk of blockage and/or siphonage may occur:

- The pipe run must be vented to prevent self-siphonage or induced siphonage (See page 35 for details of use of Air Admittance Valve)
- Access to be provided wherever possible
- Provision for thermal movement is required in the case of Solvent Weld systems (see below)

Thermal Movement

Push-fit Systems

Correctly made and anchored ring-seal/push-fit joints will accommodate thermal movement with no requirement for expansion fittings. However 4S125 Acoustic socket can be used to accommodate expansion (without having to withdraw the pipe by 12mm) and prevent structure borne sound.

Solvent Weld Systems

Provision for thermal movement is required (see Figure 2):

- For all pipe runs over
  – 3m for 32, 40 or 50mm pipe
  – 4m for 110 or 160mm pipe
- Between any two fixed points 1m or more apart

Fixed points include:

- Fittings supported by socket brackets
- Changes of direction
- Branches from other appliances

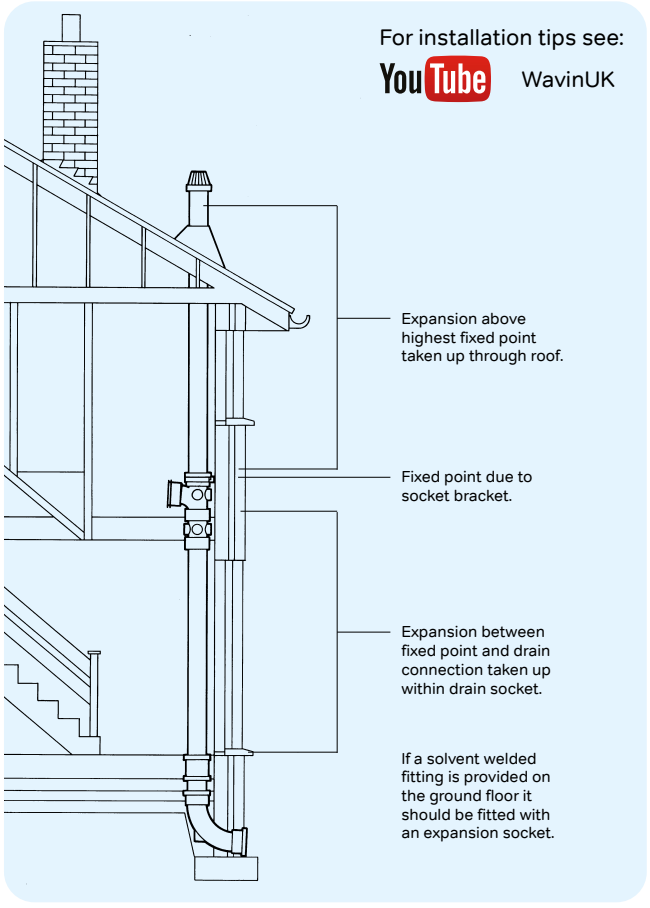
Pipe brackets allow the movement of pipework between fixed points whilst keeping the pipework steady.

The following components are available for the creation of thermal expansion joints:

Components

- PVC-U Solvent Weld Soil system:
  Expansion Cap 4S416 (110mm) and 6S416 (160mm)
- PVC-U Push-fit Soil system:
  Acoustic Socket 4S125 (110mm)
- ABS Solvent Weld Waste system:
  Expansion Socket 4Z/5Z/2Z124

Figure 2: Thermal movement requirements for a Solvent Weld Soil system



Pipe Support

Support Centres

Pipe should be supported in accordance with Table 9 below showing maximum support centres for pipes installed vertically and horizontally.

Brackets are available to meet all support requirements for Wavin Soil and Waste systems.

Table 9: Maximum Pipe Support Centres

Pipe Size (mm)	Centres (m)	
	Vertical	Horizontal
21.5	0.5	0.5
32	1.2	0.5
40	1.2	0.5
50	1.2	0.6
82	2	1
110	2	1
160	2	1.2

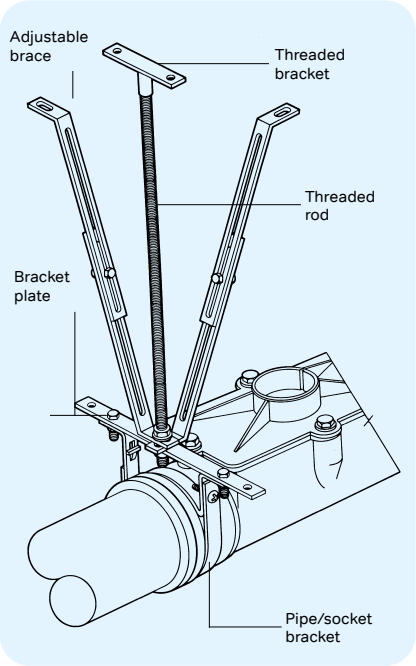
Suspended Pipework

Bracket assemblies are available for suspended sanitary and drainage installations within a building.

The Suspended Bracketing system (see Figure 3) offers socket or pipe bracketing in 110mm and 160mm sizes and is adjustable to accommodate pipe falls.

Note: Not suitable for use in damp inaccessible voids.

Figure 3: Suspended bracketing – socket support



Access

Access points should be provided to enable all pipework to be tested and maintained effectively. To facilitate use of testing and cleaning equipment, access points should be positioned so that:

- Building structures such as walls and ducts do not impede use of the equipment
- No danger or nuisance is likely if leakage should occur

This can be achieved by positioning access points above the spill-over levels of any pipework which may be affected by blockages.

Access to Ranges of WCs

Branch pipes serving ranges of WCs should incorporate access points:

- At the head of the run
- Wherever the pipe changes direction

Venting of these branch pipes is not normally necessary, except:

- Where more than 8 WCs are being served
- Where there are several changes of direction

Urinals

Waste pipe serving urinals can be subject to build up of deposits, especially in areas of hard water:

- Make provision for access to all areas of the waste system
- Keep pipe runs as short as possible: less than 3m is recommended

To increase self-cleansing, it is advisable for wash basins with resealing bottle traps to discharge into the waste system. See BS EN 12056:2000 for provision of access.

Offsets

Offsets are permitted in the dry portion of the stack and do not require venting.

Offsets in the wet portion of a stack should ideally be avoided. Where this is unavoidable, use large radius bends.

A secondary ventilation stack may be necessary to connect above and below the offset, to reduce siphonage threat to traps.

The diameter of this ventilation stack pipework is typically half that of the discharge stack.

Design
Wavin Solvent Soil and Waste

Connections to Drainage

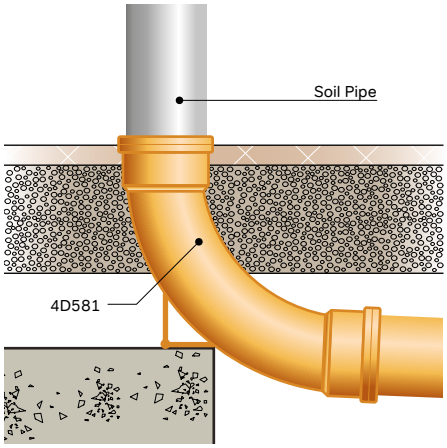
Wavin systems include couplers, connectors and adaptors to enable direct connection of Wavin Above and Below Ground Drainage Pipes, and to other systems made of PVC-U, cast iron and clay.

Connections to PVC-U

110mm Soil Pipe connections to PVC-U drainage pipes are straightforward using ring seal/push-fit Jointing and Below Ground Drainage fittings.

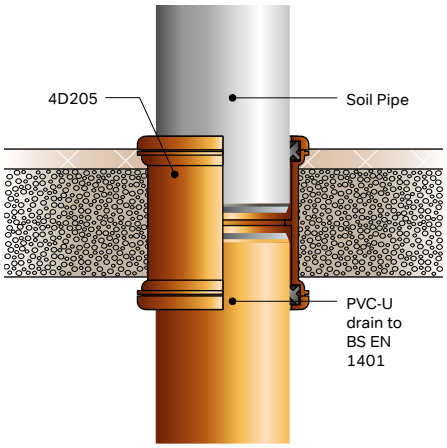
- Via Bend 4D581

Figure 4: PVC-U drain socket (via 4D581)



- Via Coupler 4D205

Figure 5: PVC-U drain spigot (via 4D205)



Connections to Other Materials

Soil connections to non-plastic drainage materials include:

- To Clay
  – To thinwall clay drain pipe spigot via Adaptor 4D129
- To Cast Iron
  – To CI soil socket via Connector 4S106 OR Connector 4S206

Waste to Drain Connections

Waste pipes can be connected to below ground drainage by using Boss Socket Adaptors. For typical arrangements see Figures 6-8.

Figure 6: Typical internal waste pipe connection to drain

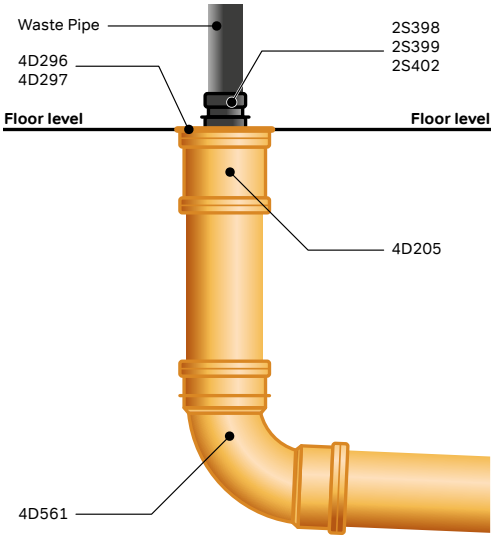


Figure 7: Typical waste connection to Sealed Hopper

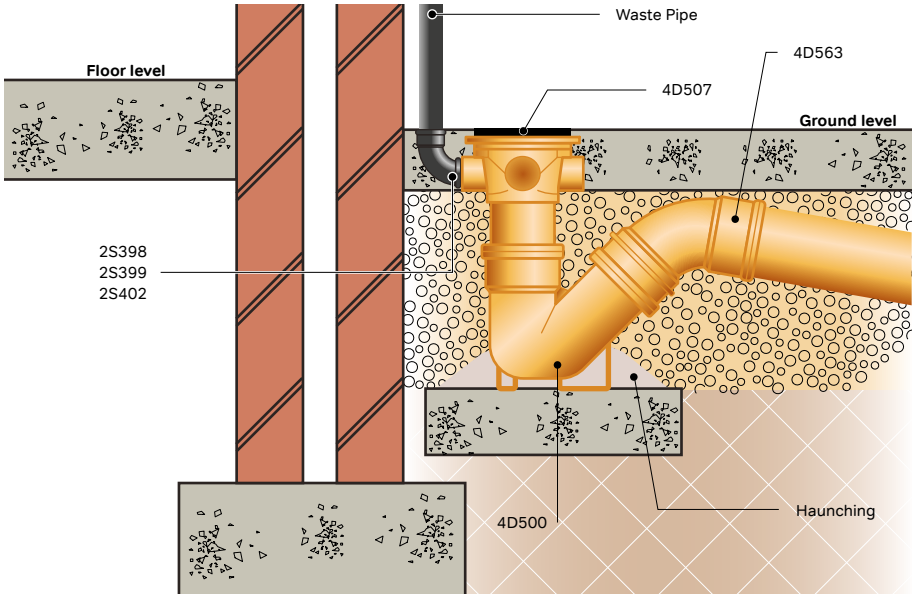
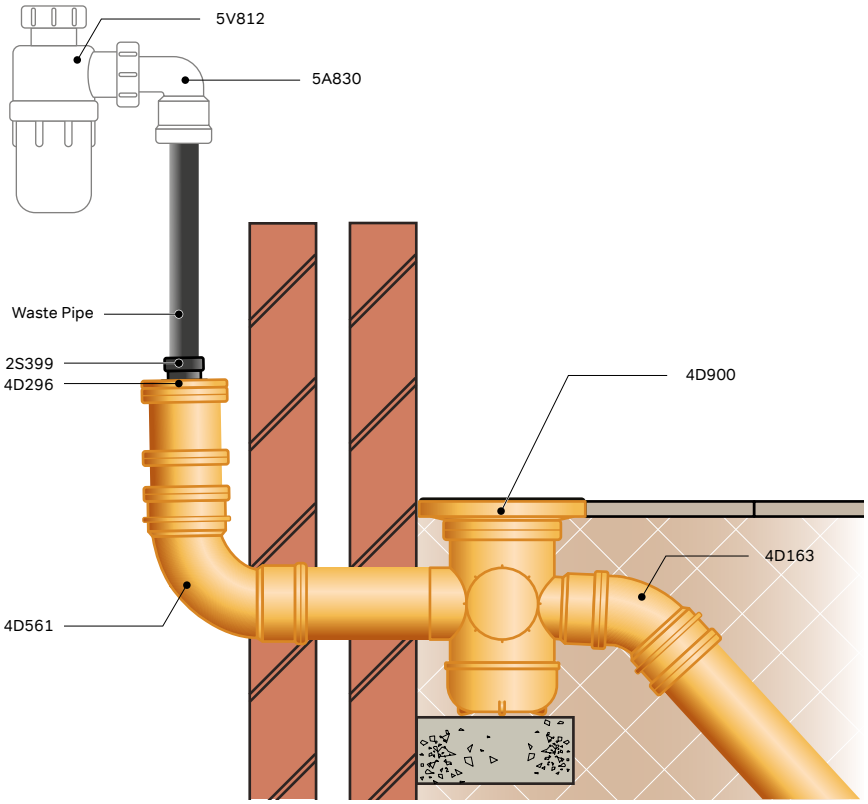


Figure 8: Typical waste pipe connection to Bottle Gully



Design
Wavin Solvent Soil and Waste

Connections to Waste

Bossed Fittings

Waste discharge pipework can be connected to the soil stack via a comprehensive range of Bossed Pipes and Bossed Branches, including:

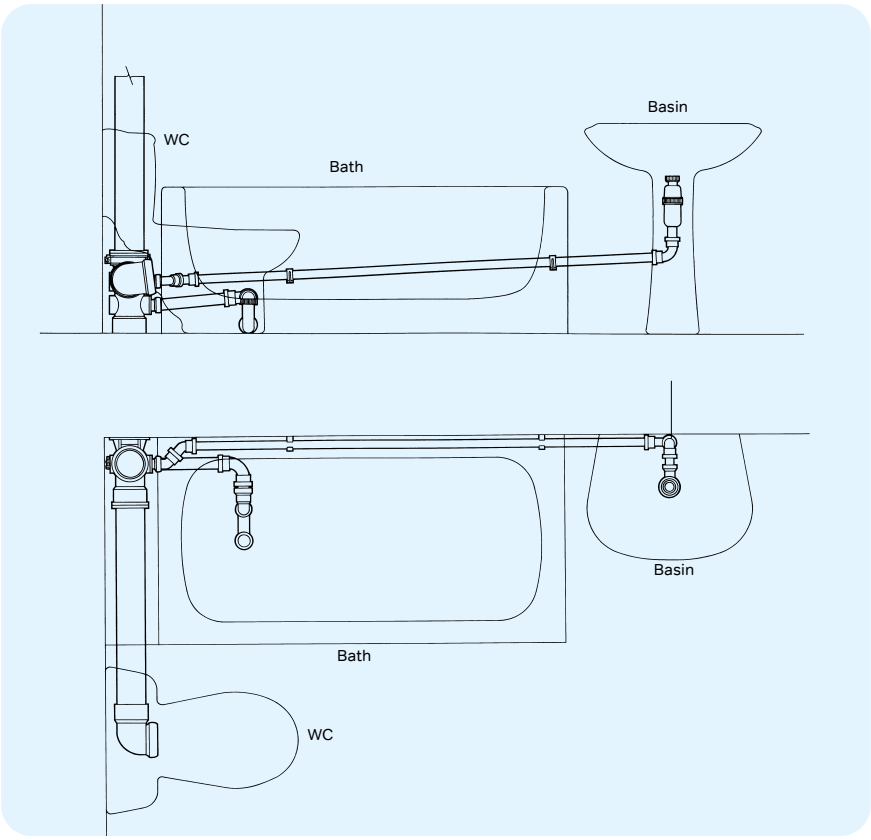
- Single Bossed Pipes with one open boss socket
- Bossed Pipes with one open boss socket and three closed boss sockets

Discharge pipework feeding into the stack must be carefully designed to ensure safe flow and prevent cross flow. See Prevention of cross flow opposite.

Figure 9: Alternative Bossed Branches

4S483 4S588

Figure 10: Typical bathroom layout



Boss Sockets

Closed boss sockets may be opened using a standard 50mm hole cutter. Boss Socket Adaptors are available with either push-fit sockets or solvent weld sockets:

- Push-fit: to enable connection to Polypropylene pipe manufactured to BS EN 1451-1, and copper waste pipes manufactured to BS 659 or BS 2871
- Solvent weld: to enable connection to ABS pipe manufactured to BS EN 1455-1 and PVC-C pipe manufactured to BS EN 1566-1

All horizontal Boss Socket Adaptors have an in-built fall of 2½° and a locating key at the top to ensure correct orientation.

Connections at Floor Level

The Soil Manifold 4S595 provides a simple method for connection of multiple waste pipes at floor level.

The system is particularly suitable for use in flats and other multi-storey developments (see Figure 11).

With a right-angled back and compact, unobtrusive design, the Soil Manifold fits neatly in any corner and permits simple push-fit waste connection via standard Adaptors 2S356/2S355/4Z124.

Its integral socket allows push-fit connection of a branch or soil pipe.

Connections at Floor Level

Figure 11: Soil Manifold system

4S595

2S356 2S355 4Z124

The 6 Boss Soil Manifold – 4S597 is a compact fitting designed for easier installation where space is restricted. It is particularly suitable for multi-occupancy residential buildings.

- Horizontal waste connections: no upstanding bends required
- Compact 163mm square shaped body sits easily in 200mm drilled or formed hole
- Works equally well in corner or central locations
- 6 boss connection points increasing the options for joining separate waste runs
- Low-level horizontal waste connection (allows plumber flexibility to achieve 132mm from centre line of horizontal branch inlet to invert of 50mm waste boss)
- Dual 40mm/50mm solvent weld connection
- Easy to drill waste connections – ample clearance from inner fitting section
- Reduced requirement for bends
- No special adaptors needed

Figure 12: 6 Boss Soil Manifold – 4S597

Figure 13: Typical Connections to 6 Boss Soil Manifold

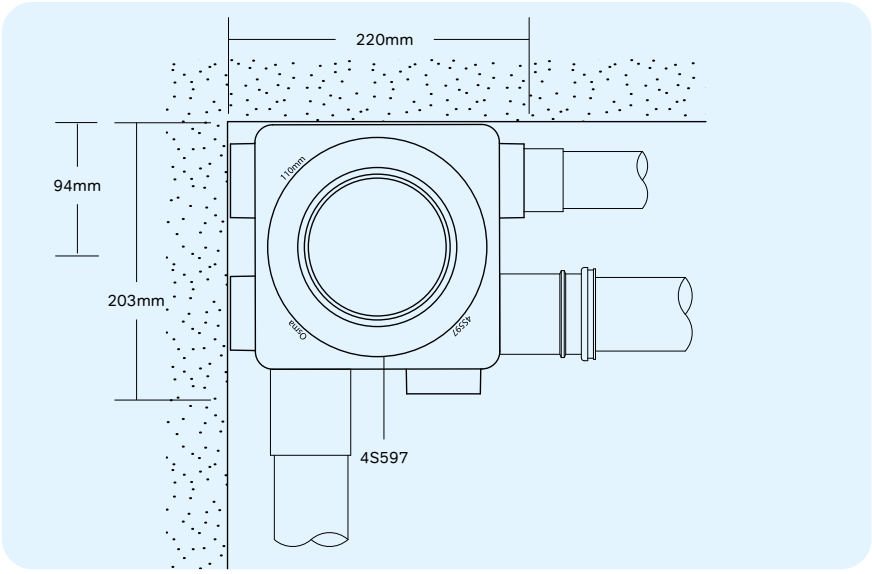
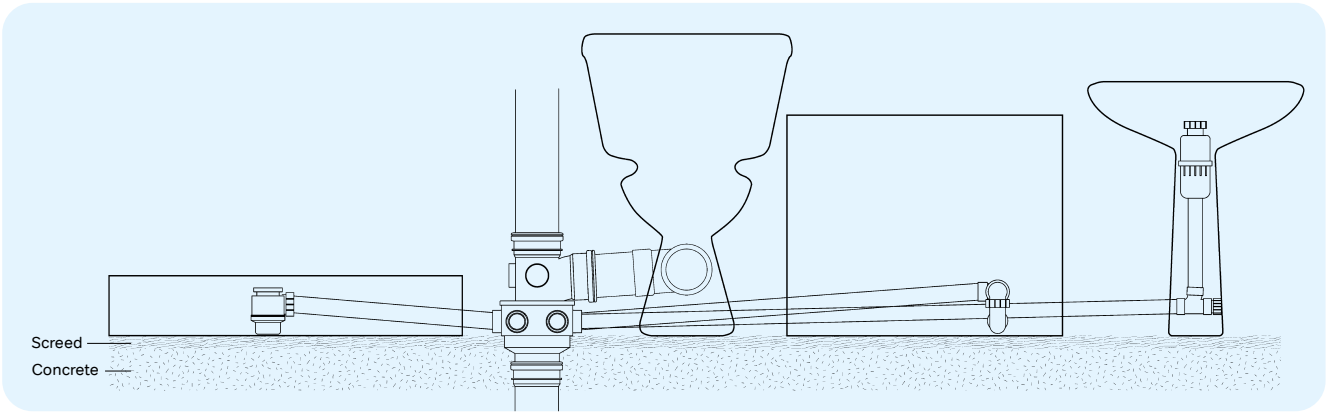


Figure 14: Typical Bathroom Installation using 6 Boss Soil Manifold 4S597



Design
Wavin Solvent Soil and Waste

Connections – After Construction

Strap Bosses offer a low cost means of connecting waste pipes from basins, baths, bidets and showers to soil discharge pipework after construction. However, Strap Bosses are not recommended for use where high temperature discharges are likely (e.g. from kitchen sink wastes).

Permitted connections

Bossed Branches have a maximum of five socket positions. Two waste pipes may be connected to one side, or one waste pipe may be connected to each side, provided both connections are at the same level (see Figure 15).

Single connections are also possible at the side and rear of the Branch.

Connections NOT permitted

Offset connections to each side of the Branch are NOT permitted (see Figure 16).

Figure 15: Permitted connections

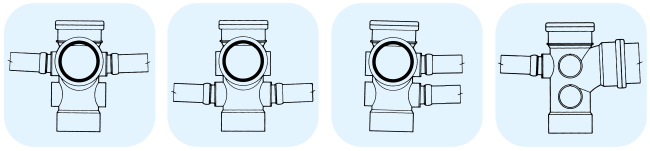
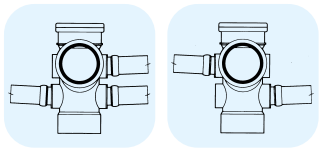


Figure 16: Connections NOT permitted



Prevention of Cross Flow

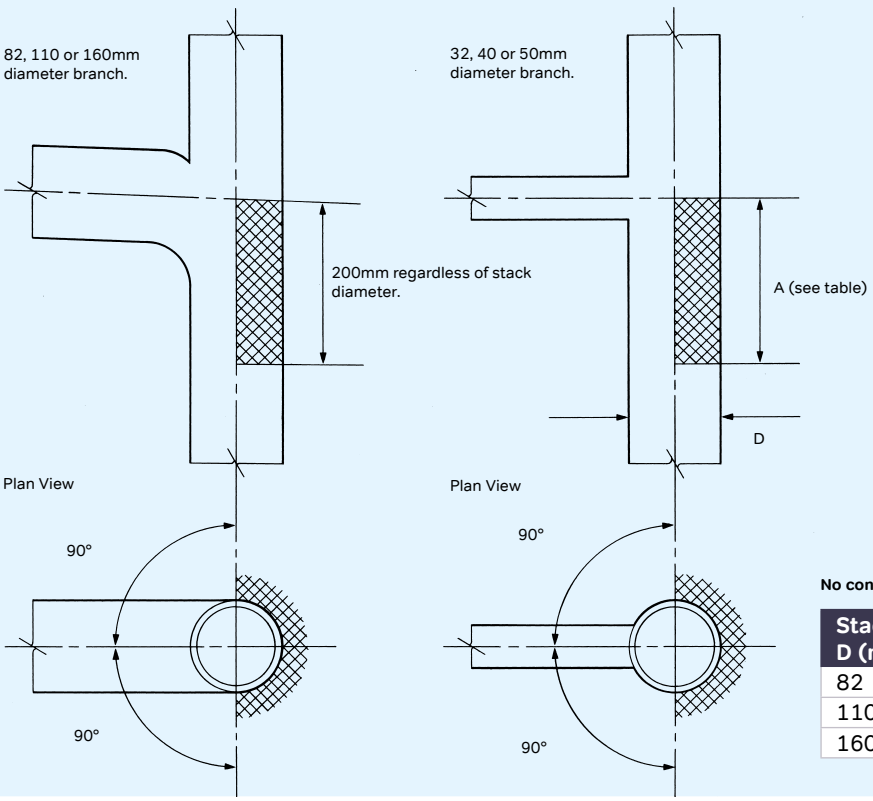
(see Figure 17)

Opposing connections to the stack are permitted provided that they are made:

- At the same centre line
- On or outside the edge of the connection zone created by any branch connection

See BS EN 12056:2000 for the prevention of cross flow.

Figure 17: Prevention of cross flow



No connection permissible in shaded area.

Stack Diameter D (mm)	Height of Zone A (mm)
82	90
110	110
160	250

Connections to WCs

WCs Manufactured to BS 5503

Wavin Soil includes a wide range of white WC Connectors and bends for direct connection to WCs manufactured to BS 5503.

PVC-U 110mm Fittings

Available in 2½°, 14° and 90° angles, each fitting has:

- Integral EPDM gasket for push-fit connection to the WC outlet (see Figure 19)
- Plain end (spigot) or solvent socket for connection to soil pipe/drain

For extension of a connector to overcome varying distances between WC spigot outlet and soil pipe/drain, S/S Long Tail Bend may be added and cut to length. NOT to be used as WC Connector alone (see Figure 20). 90° Connectors with access are also available for ground floor installations.

Easy-fit Pan Connectors 3½" and 4"

Available in straight, offset, 14° and 90° configurations, each fitting has:

- Integral EPDM gasket for push-fit connection to the WC outlet
- Integral EPDM seal for push-fit into 110mm plastic pipe, or 102mm cast iron pipe to BS 416 (see Figure 18)

WCs Manufactured to BS 1213

Connectors and bends are available for straight connection direct to WC outlets (manufactured to BS 1213) when fitted with WC Gaskets for 4-4½" WC spigot or for 4½-4½" WC spigot.

Figure 18: Easy-Fit Pan Connector

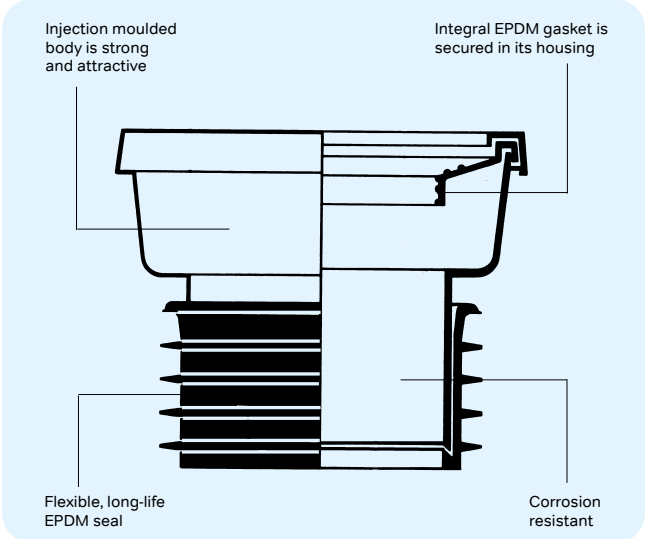


Figure 19: Connection to ground floor WC

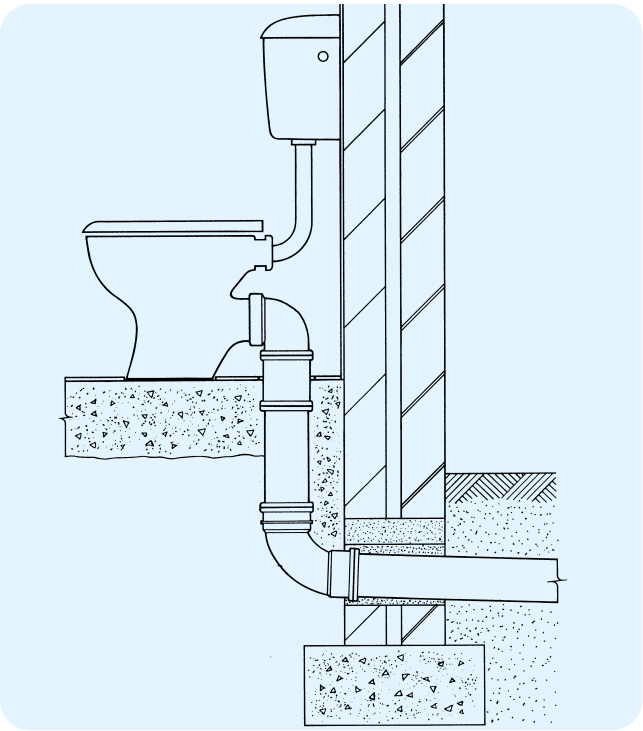
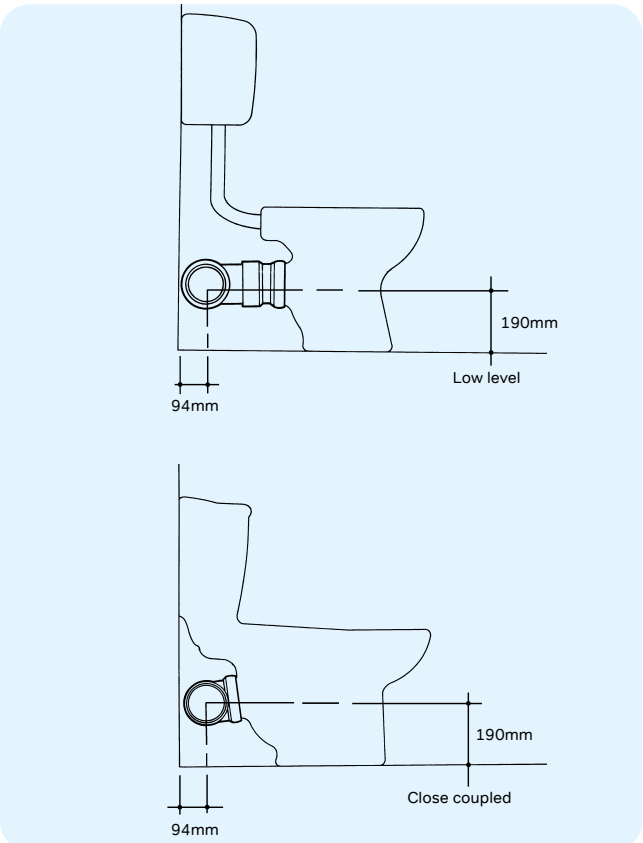


Figure 20: Alternative connection to WCs



Design
Wavin Solvent Soil and Waste

WCs Back-to-back

Corner Branch – 87½° enables connection of back-to-back WCs to drain (see Figures 21-22).

Figure 21: Back-to-back WC installation

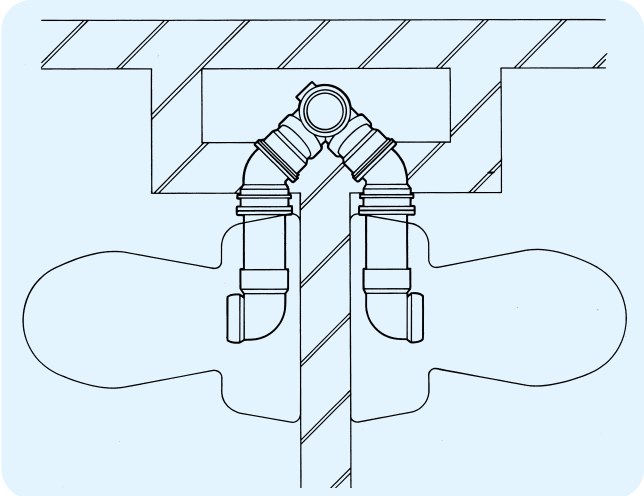
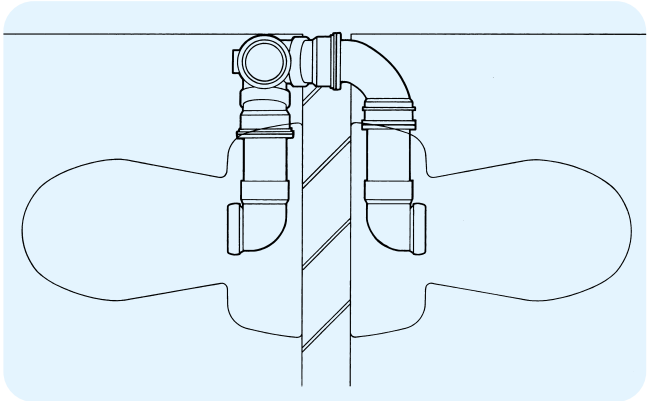


Figure 22: Alternative back-to-back WC installation



WC Connections Direct to Drainage

WCs may be connected direct to a drain. Venting will not be required provided that the distance from the crown of the trap to the invert of the drain does not exceed 1.5m (see Figure 19).

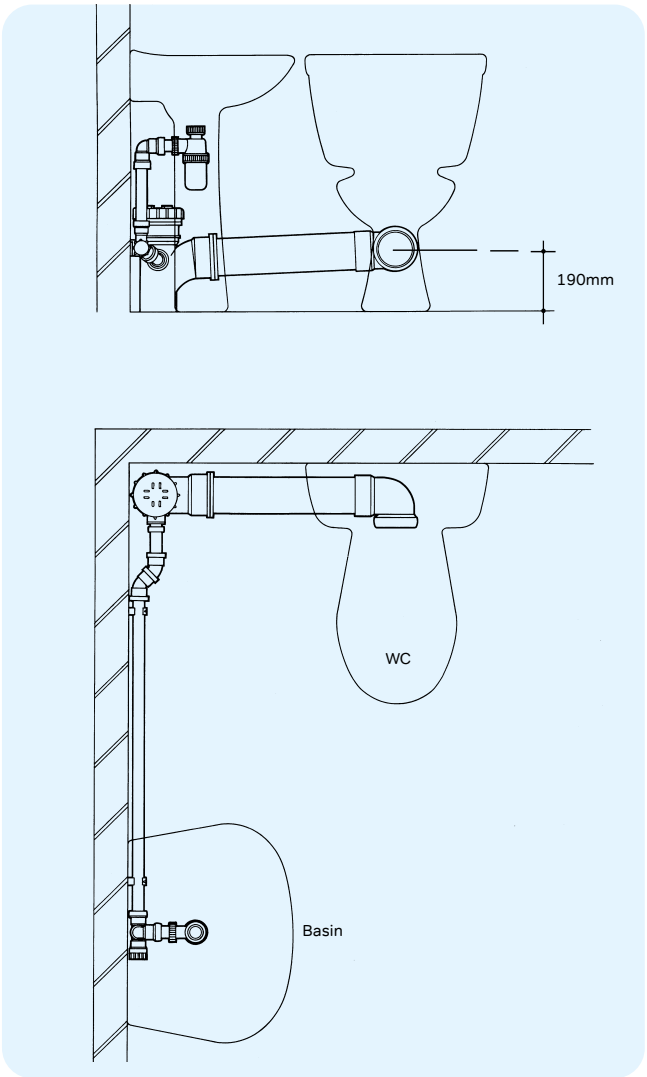
Stub Stacks

Designed as a 110mm discharge stack with access fitting cap on top. Connects various appliances to the drain or discharge stack, providing the total loading does not exceed 5 litres/sec.

The distance from the invert level of the drain or discharge pipe to the topmost waste connection should not exceed 2.5m.

The distance from invert level to centre line of the WC should not exceed 1.5m (see Figure 23).

Figure 23: Typical stub stack arrangement



Ventilation

General Principles

Discharge pipework must be vented to prevent self-siphonage or induced siphonage, and to protect traps.

Use of a separate ventilation stack to atmosphere is generally not required unless a sharp offset in the stack cannot be avoided (see also page 27).

Branch pipes

Separate ventilation of branch pipes is required only if the length and slope of the branch exceeds the dimensions set out in BS EN 12056:2000 or Part H of the Building Regulations (England and Wales), Part M (Scotland).

Air Admittance Valves

In many cases, and subject to certain design considerations, Air Admittance Valves (AAVs) may be installed as an alternative to traditional venting techniques. These reduce the number of ventilating pipes required to penetrate the roof in multi-installations, without affecting the performance of the drainage system.

AAV description and operation

AAVs include a diaphragm which, in the closed position, seals the unit and prevents foul air from escaping. Whenever internal pressure drops, the higher pressure external air opens the diaphragm to admit air and equalise the internal/external air pressure (see Figure 24).

Soil Stack Ventilation

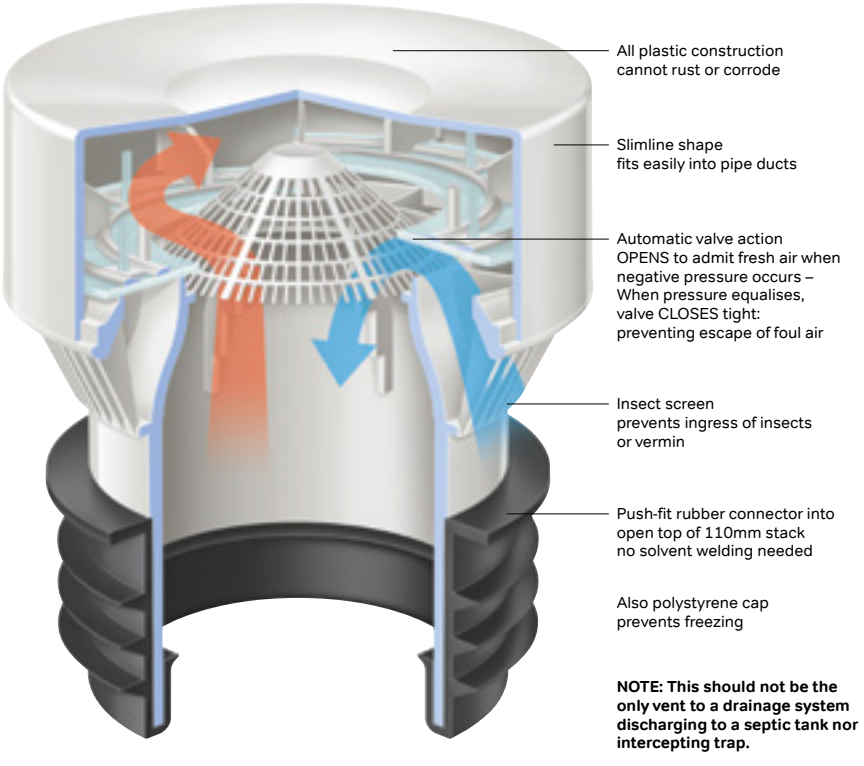
A1 Rated 110mm Air Admittance Valve 4S304 is designed for venting of:

- 110mm soil stacks up to 10 storeys
- 110mm stub stacks

The 110mm AAV may be used on runs serving a row of 10 dwellings, provided the vent stack closest to the main sewer is vented traditionally to atmosphere.

See also Drain Ventilation overleaf.

Figure 24: Valve operation



When used to vent a soil stack, 110mm Air Admittance Valve 4S304 should be located:

- Within a building, fitted vertically
- Preferably in a non-habited space (duct or roof-space)
- Where there is no risk of freezing
- Where it is accessible but not at risk of interference by vandals
- Fitted 200mm above the highest branch

NOTE: This should not be the only vent to a drainage system discharging to a septic tank or intercepting trap.

A2 rated 110mm Air Admittance Valve 4S306 is designed for venting of:

- 110mm soil stacks up to 3 storeys
- 110mm stub stacks

The 110mm AAV may be used on runs serving a row of 10 dwellings, provided the vent stack closest to the main sewer is vented traditionally to atmosphere.

See also Drain Ventilation overleaf.

When used to vent a soil stack, 110mm Air Admittance Valve 4S306 should be located:

- Within a building, fitted vertically
- Preferably in a non-habited space (duct or roof-space)
- 150mm above the insulation in attic installations
- Where there is no risk of freezing
- Where it is accessible but not at risk of interference by vandals
- Installed above spillover level of highest appliance

Design
Wavin Solvent Soil and Waste

Stub Stacks

When used to vent a stub stack, 110mm Air Admittance Valve 4S304 can be located 200mm above the highest branch. The Air Admittance Valve 4S306 must be installed above spillover level of highest appliance. (see Figure 25).

Waste Ventilation

40mm Air Admittance Valve 4S303 is designed for venting of 32, 40 or 50mm waste pipework where the pipe run exceeds the recommended maximum distance from the trap to the stack, i.e.:
– 3m for 40mm pipe
– 4m for 50mm pipe

The 40mm Air Admittance Valve 4S303 is suitable for use on single or combined waste systems.

Drain Ventilation

110mm Air Admittance Valve 4S304 may also be used for drain ventilation.

Typical arrangements for access and provision of drain ventilation for different dwelling types are shown in Figure 26.

Radon Gas Resistance

Soil pipes and fittings are unaffected by radon gas when used as part of a ventilation system designed specifically for radon gas extraction. For connections made within a building, the use of solvent weld joints is advisable. For further information on radon gas, contact the BRE Radon Hotline on 01923 664707.

Figure 25: Vented stub stack

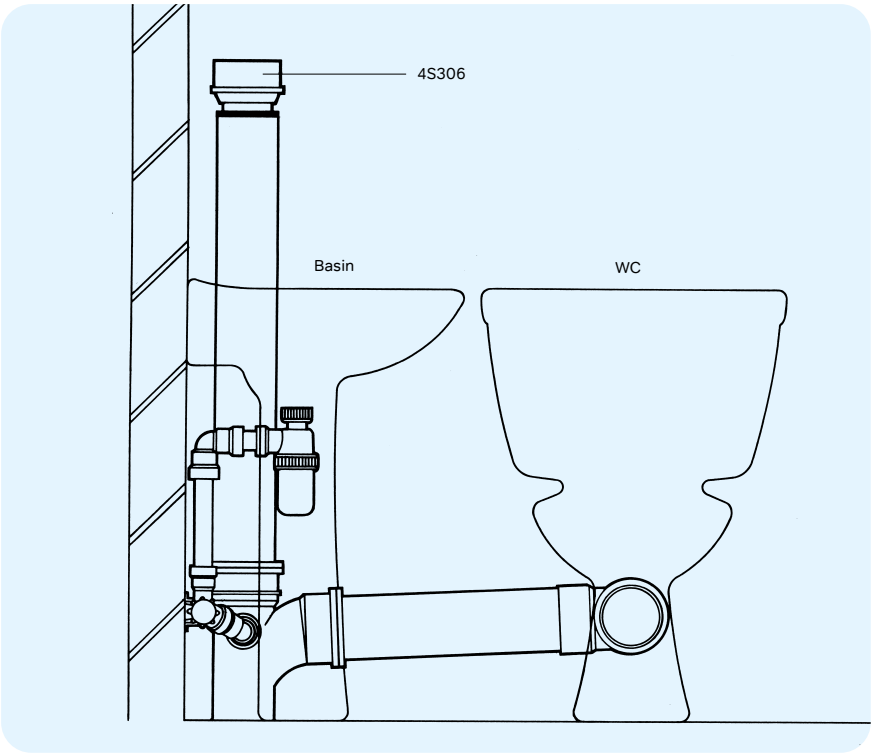
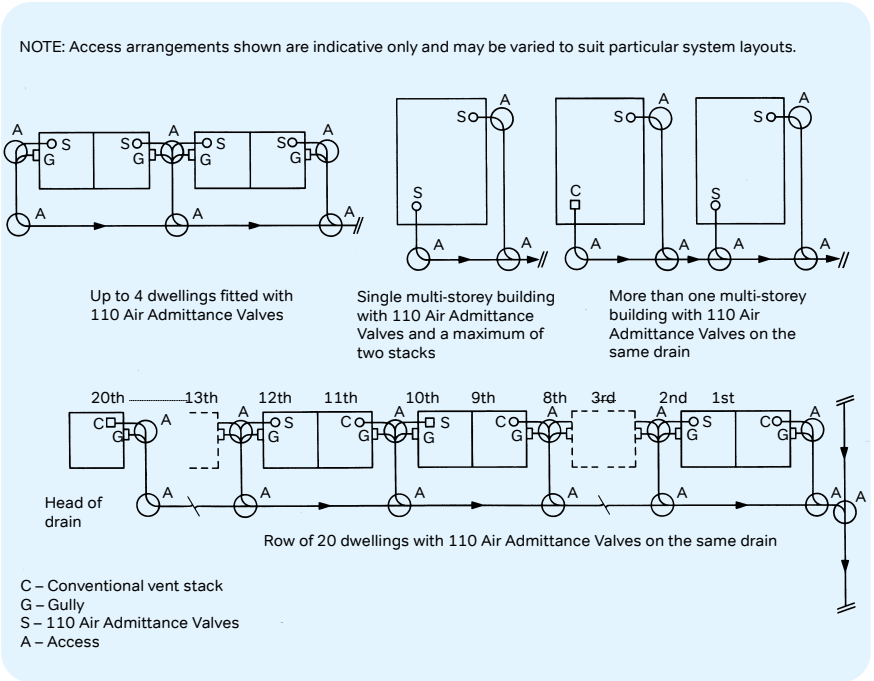


Figure 26: Examples of provisions for drain ventilation



Fire Stopping

Fire Stop Seals

Fire Stop Seals prevent the spread of fire, smoke and hot gases through plastic pipes that penetrate fire compartment floors and walls.

The Seals consist of two half shells of metal which are clipped around the pipe and anchored to the structure. The metal shell contains an intumescent material which reacts under intense heat.

Fire Stop Seals can be installed horizontally or vertically and provide an economic alternative to constructing fire resistant ducts.

Testing

Any fire stop seal used must be tested to the latest standards and comply with the requirements of Fire Safety Approved Document B.

Applications

Fire Stop Seals are suitable for maintaining the fire resistance of:

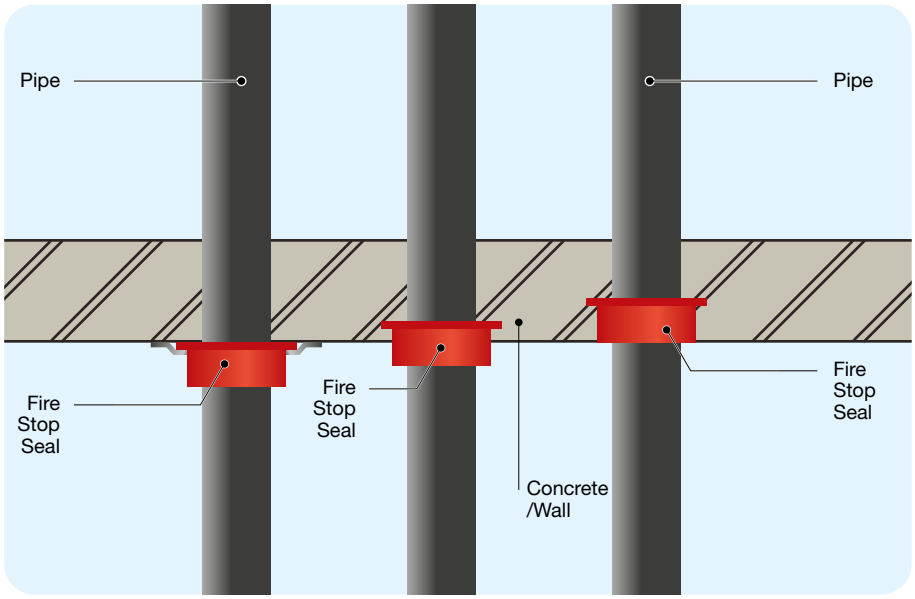
- Masonry walls and concrete floors which are penetrated by plastic pipework forming part of a drainage or ventilation system
- Timber floor constructions with ceiling lining which has at least one hour fire resistance rating

Fire Stop Seals can be fixed before or after the installation of the pipes and operate horizontally or vertically. For horizontal pipework where there is a fire risk from BOTH sides of the wall, the unit should be installed within the thickness of the wall or, if this is not possible, one unit should be fitted to each side of the wall (see Figure 27).

Fire Stop Seals are suitable for all types of new or refurbished buildings, especially residential flats, apartments, offices, hospitals, and schools.

They must be carefully fitted strictly in accordance with instructions. For full installation details, see manufacturers details.

Figure 27: Fixing positions for Fire Stop Seals in concrete floor/masonry wall



Design
Wavin Solvent Soil and Waste

Materials: Properties and Performance

Heat Resistance

Pipes and fittings manufactured from PVC-U or ABS

- Wavin Soil systems and ABS Solvent Weld Waste system – OsmaWeld: Suitable for use with intermittent discharges of water up to 90°C

Pipes and fittings manufactured from PVC-C or Polypropylene

- PP Push-Fit Waste systems (to BS EN 1451-1 and BS EN 1566-1) and V-Joint Traps: Suitable for use with intermittent discharges of water up to 100°C

PVC-U and ABS overflow pipes and fittings

- Solvent Weld Overflow system: Must not be used where hot water discharges are likely to occur

Polypropylene overflow pipes and fittings

- PP Push-Fit Overflow system: May be used where intermittent hot water discharges are likely to occur. However, they must not be used with combination hot water cylinders and feed tanks

Chemical Resistance

Wavin Soil, Waste and Trap systems are unaffected by normal domestic effluent, detergents, cleaning fluids and a wide range of chemicals. Chemical effluent containing solvents should not be disposed of through PVC-U and ABS Waste systems.

For commercial and industrial applications, consult BSCP 312: Part 1: 1973 Code of Practice for plastic pipework. This provides comprehensive information on chemical resistance to plastic pipework.

Painting

Wavin Soil, Waste and Overflow pipes and fittings are self-coloured and corrosion resistant. They may, however, be painted with normal household paints if an alternative colour is required. Oil-based gloss paint is the most suitable for this purpose. For best results, slightly abrade the surface with sandpaper and clean thoroughly before painting.

Timber Preservatives

If soil or waste pipes and fittings are to be installed externally and fixed to timber fascias or boards treated with timber preservatives, the preservatives must first be allowed to dry out prior to fitting. Refer to manufacturers' recommendations.

Biological Attack

Normal pollutants in the atmosphere will not affect Soil, Waste or Overflow systems. They are also unaffected by fungi, moss, lichen, moulds or bacteria.

Physical Attack

If pipework is installed internally or externally in areas likely to suffer attacks by vandals, the suitability of the material should be questioned. In such a situation, Solvent Weld systems are less likely to be dismantled than Ring-Seal or Push-Fit systems. However, unlike cast iron or copper systems, plastic has no scrap value and is therefore less likely to be targeted.

Ultra Violet Light

PVC-U pipework has superior resistance to the effects of UV light and, although it may fade slightly after many years of exposure to strong sunlight, its integrity is unaffected. It is recommended that externally installed ABS and PP pipework be painted with an oil-based gloss as a protective coating against long exposure to sunlight.

Radon Gas Resistance

Soil pipes and fittings are unaffected by radon gas when used as part of a ventilation system designed specifically for radon gas extraction. For connections made within a building, the use of solvent weld joints is advisable. For further information on radon gas, contact the BRE Radon Hotline on 01923 664707.

Handling, Storage and Safety

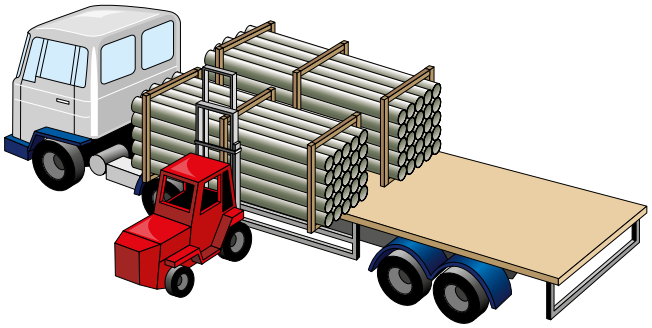
Handling

Care should be taken when handling pipe and fittings. Excessive scratching or scoring harms the appearance and can also affect the joint sealing.

Take extra care when handling pipe and fittings in wintry conditions. Cold weather reduces the impact strength of plastics. Use nylon belt slings, or forklifts with smooth forks, for mechanical unloading of block bundles. Metal slings, hooks or chains must not come into contact with pipes (see Figure 28).

Load and unload loose pipe by hand. Avoid using skids. When loose pipes have been transported one inside the other, always remove the inner pipe first.

Figure 28: Unloading of block bundles



Storage

Always store pipe on a reasonably flat surface free from sharp projections.

Block bundles

Block bundles can be stored up to 3m high without extra side supports or bearers. Block bundles will remain free-standing when cut. Take care when releasing bundles as the straps are under considerable tension and may flail when cut.

Loose pipes

Loose pipe requires side supports at least every 2m. These supports should consist of battens at least 75mm wide. Ideally, support loose gutter or pipe uniformly throughout its entire length. If this is not possible, place timber supports at least 75mm wide at 1m maximum centres beneath the pipe (see Figure 30) Stack different size pipe separately, or, if not possible, stack with larger diameters at the bottom.

Maximum stack size: 7 layers or 2m high (see Figure 29).

Stack Socketed Pipe with sockets protruding and placed at alternate ends to ensure pipe is evenly supported.

Fittings

Store fittings supplied in plastic bags away from direct sunlight. If this is not possible, open bags to prevent a build-up of temperature.

Fittings in cardboard packaging (e.g. Fire Stop Seals and Air Admittance Valves) should be stored under cover until required.

Store degreasing cleaners, silicone lubricant, solvent cement and fillers in a cool place away from any heat source and out of direct sunlight.

Safety

The relevant regulations detailed in the Health and Safety at Work Act 1974 must be adhered to on site.

Figure 29: Storage of loose pipe on the ground

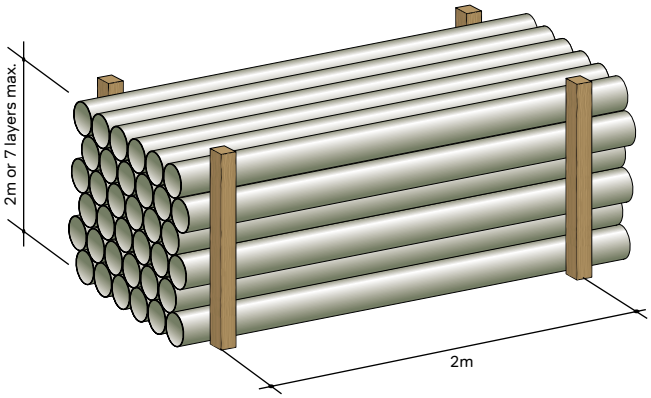
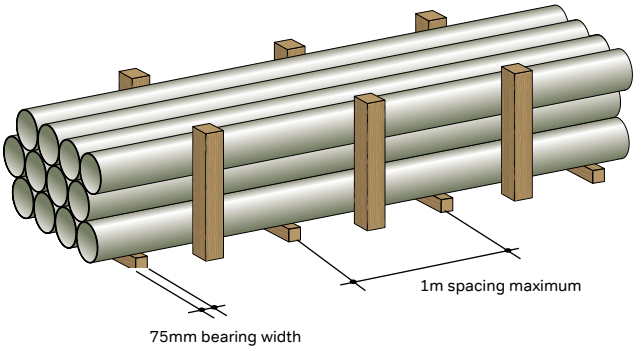


Figure 30: Storage of loose pipe on bearers



General Information
Wavin Solvent Soil and Waste

Materials

Pipes and most fittings in Wavin Soil and Waste systems are manufactured from the following materials, as individually denoted in the product listings in this Guide.

Material	Systems
PVC-U Unplasticised Polyvinyl Chloride	Soil systems and Solvent Weld Overflow system (pipe only)
PP Polypropylene	Push-Fit Waste system and Push-Fit Overflow system, V-Joint Traps
ABS Acrilonytrile Butadiene Stryrene	ABS Solvent Weld Waste system and Solvent Weld Overflow system (fittings only)
PVC-C Chlorinated poly (vinyl chloride) (PVC-C)	PVC-C Solvent Weld Waste System
HDPE High Density Polyethylene	Electrofusion and Butt fusion welded system

Quality, Standards and Approvals

The British Standards Institution has issued certificates registering Wavin as a firm of assessed capability, with a quality management system which meets the requirements of BS EN ISO 9001.

Wavin systems are the benchmark for excellence and product innovation: precision-manufactured using the most advanced injection moulding and extrusion machines. All products comply with or exceed relevant British and European standards to ensure reliability and long-lasting service.

Acceptance

Wavin Soil and Waste systems comply, where applicable, with the requirements of the following British Standards:

- BS 3943:1983 Specification for waste traps
- BS 4514:2001 Unplasticised PVC soil and ventilating pipes, fittings and accessories (82.4mm minimum mean outside diameter)
- BS 6209:1982 Solvent cement for non pressure thermoplastics pipe systems
- BS EN 1329-1:2000 Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure. PVC-U
- BS EN 1453-1:2000 Plastics piping systems with structured-wall pipes for soil and waste discharge (low and high temperature) inside buildings. Unplasticized poly (vinyl chloride) (PVC-U)
- BS EN 1566-1:2000 Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure. PVC-C Chlorinated poly (vinyl chloride)
- BS EN 12380:2002 Air admittance valves for drainage systems
- BS EN 1519-1:2000 Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure – Polyethylene (PE).

The British Standard Kitemark identifies pipe and fittings that are manufactured under the BSI certification scheme.

Wavin Soil systems have been awarded British Board of Agrément [BBA] certification as follows:

– Air Admittance Valve 40 and Air Admittance Valve 110 – 86/1643

– 110mm Adjustable Bend – 89/2174

References

Wavin Soil and Waste systems should be designed and installed in accordance with the guidance provided in the appropriate sections of the following:

- Building Regulations 2000 (England and Wales): Approved Document H, Part H1
- Building Standards (Scotland) Regulations 1993-2002 (including current amendments: Technical Standards Part M)
- Building Regulations (Northern Ireland) 2000: Technical Booklet N
- BS 8000 Workmanship on Building Sites: Part 13: 1989 Code of Practice for above ground drainage and sanitary appliances
- BS EN 12056: 2000 Gravity drainage systems inside buildings: Part 3 Roof drainage, layout and calculation
- Painting plastics: IP 11/1979. Watford, BRE 1979
- Water Regulations Guide: London, Water Regulations Advisory Scheme, 2000
- BS EN 752:2008 – Drain and sewer systems outside buildings

Environment

All Wavin manufacturing sites operate Environmental Management Systems which comply with the requirements of and are certified to ISO 14001: 2004.

Health and Safety

The relevant provisions of the following legislation should be adhered to on site:

- Construction (Design and Management) Regulations 1994
- Control of Substances Hazardous to Health Regulations 1988
- Health and Safety at Work Act 1974
- Management of Health and Safety at Work Regulations 1999
- Manual Handling Operations Regulations 1992

Hazards associated with PVC-U, PVC-C, Polypropylene and Polyethylene

There are no particular hazards associated with handling, cutting or working with the materials mentioned above, and protective clothing or equipment is not normally required.

Safety Data Sheets covering PVC-U, PVC-C, PP, PE, lubricant, solvent cements and cleaners are available from the Wavin Technical Design Department, please call Technical Enquiries to obtain a copy.

Abbreviations

Key	
P/E:	Pipe and fittings with both ends plain or with one plain end and one special end
S/S:	Pipe and fittings with one or more ring-seal or push-fit sockets, but always one plain or special end
D/S:	Fittings with ring-seal or push-fit sockets at all ends
S/SW:	Fittings with one or more ring-seal sockets but always one solvent socket
SW/S:	Fittings with one or more solvent sockets and one plain or special end
D/SW	Fittings with solvent sockets at all ends

Supply

All systems are supplied through a nationwide network of merchant distributors. For details of your nearest merchant, contact Wavin Customer Services.

Sealing Rings

Where applicable, Sealing Rings are supplied fitted to each component and are included in the price.

Conditions of Sale

Wavin will not accept responsibility for the malfunction of any installation which includes components not supplied by Wavin. Goods are sold subject to Company conditions of sale.

Other Wavin Industrial and Commercial Systems

Tigris K5/K1 Multilayer Press-fit System

High efficiency supply system for potable water, sanitary and heating applications.

- Efficient installation, superlative performance
- Advanced performance Hot & Cold plumbing system designed for potable, sanitary and heating applications in industrial, commercial and other large buildings
- Fully-proven in Europe for over 10 years and now available for selection by specifiers and installers in the UK

Wavin AS+ Acoustic Soil System

A technologically advanced, push-fit soil system that delivers significant noise reduction over standard soil systems. The Astolan® material can absorb both structural and airborne sound.

- Extremely lightweight, robust and corrosion-resistant
- Fast and easy installation, saving time and cost – especially compared with cast iron alternative
- Complies with Building Regulations, Part E
- Wrapping of pipe not necessary to achieve noise reduction

Wavin HDPE Soil and Waste System

Wavin HDPE is a complete soil, waste and vent system of pipes and fittings, manufactured from high-density polyethylene and is suitable for a range of domestic and commercial applications.

- Available in sizes from 40-315mm
- Wavin HDPE is resistant to temperatures of up to 100°C
- Wavin HDPE is well suited to assemblies subjected to vibration. It is therefore ideal for use in seismic zones and across expansion joints
- Available in Wavin's Revit software for BIM

Technical Advice

Wavin Solvent Soil and Waste is backed by Wavin's comprehensive technical advise service. This is available to provide expert assistance at every stage of a project, from planning and product selection to installation and maintenance.

Contact Wavin Technical Design Department:
Tel: 0800 038 0088

Email: technical.design@wavin.co.uk or via online enquiry at wavin.co.uk

General Information
Wavin Solvent Soil and Waste

Literature

The following Wavin publications are also available from the Literature Department at Chippenham.

General

- Wavin Above Ground Systems: Trade Price List

Above Ground Systems

- Wavin Osma Soil and Waste: Product and Installation Manual
- Wavin Tigris K5/K1: Product and Installation Manual
- Wavin Hep$_2$O: Product Guide
- Wavin HDPE: Product and Installation Manual
- Wavin AS+ Acoustic Soil: Product and Installation Manual

To request details with regards to any of the above components and/or for any technical enquires please contact:

Literature Request
Email: literature@wavin.co.uk

Technical Design
Tel: 0800 038 0088
Email: technical.design@wavin.co.uk

Wavin Online
The complete range of Wavin/Wavin Osma product and installation guides are also available online at: wavin.co.uk
Did you know you can also download our BIM files, take e-learning courses and CPD's online at myportal.wavin.co.uk and you can see installation tips on our YouTube channel WavinUK

Notes

Notes

wavin

orbia

Wavin is part of Orbia, a community of companies working together to tackle some of the world's most complex challenges. We are bound by a common purpose: To Advance Life Around the World.

Orbia's Building and Infrastructure business Wavin is an innovative solutions provider for the global building and infrastructure industry. Backed by more than 60 years of product development experience, Wavin is advancing life around the world by building healthy, sustainable environments for global citizens. Whether it's to improve the distribution of clean drinking water, to make sanitation accessible for everyone, to create climate resilient cities, or to design comfortable living spaces, Wavin collaborates with municipal leaders, engineers, contractors, and installers to help future-proof communities, buildings and homes. Wavin has 12,000+ employees around 65 production sites worldwide, serving over 80 countries through a global sales and distribution network.

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