RKS

uPVC NON-PRESSURE SWV PIPE AND FITTINGS

BS 4514 / BS 5255 / BS EN 1329 / AS/ NZS 1260

SOLVENT CEMENT JOINT

Vinidex Pty Limited is Australia's leading manufacturer and supplier of pipe systems and solutions for the transportation of fluid, data and energy. Vinidex is wholly owned by the Metal Manufactures Group.

Vinidex is recognised internationally as a major participant in the pipe industry and a ISO9001 endorsed manufacturer of PVC, Polyethylene (PE) and Polypropylene (PP) pipe systems.

uPVC Soil, Waste and Vent (SWV) pipes and fittings marketed through the **RKS** brand are commonly used to remove wastewater and sewage from fixtures such as toilets, baths and basins within buildings via gravity flow and to ventilate the system. Pipes and fittings are joined using solvent cement joints.

RKS pipes are manufactured from high quality virgin PVC resin by extrusion process process of heat and pressure. Fittings are manufactured by injection moulding, utilizing precision dies and machinery to ensure a high standard of product quality and reliability.

BENEFITS

Corrosion resistance – uPVC is completely immune to corrosion in normal sewerage

Handling/Installation – Lighter and easier handling, installation and transport provide overall project savings.

Superior flow characteristics – The very smooth bore and chemical resistance characteristics of uPVC 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.

STANDARDS

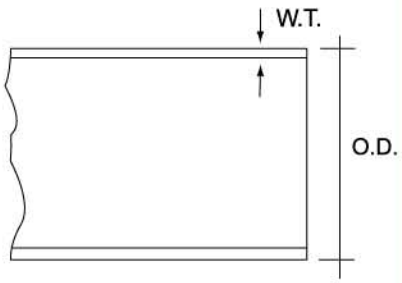
RKS SWV pipe and fittings are manufactured and tested in accordance with the following standards:

AS/NZS 1260	uPVC Pipes and Fittings for Soil, Waste and Vent (SWV)
BS 4514	Unplasticized PVC Soil and Ventilating Pipes Fittings and Accessories
BS 5255	Plastic Waste Pipe and Fittings
BS EN 1329	Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure – Unplasticized PVC

DIMENSIONS

All dimensions are in millimetres unless otherwise stated

Pipe Dimensions



The pipe is plain and for solvent weld jointing. Full details of dimensions of all sizes, minimum wall thickness and pipe lengths are given in the following tables.

Pipe Dimension of BS 5255; AS/NZS1260; BS EN 1329

Size		O.D.		Min.	Pipe	Tolerance
mm	inch	min.	max.	W.T.	Length	
32	1¼"	36.2	36.5	1.8	5.5m	± 0.1m
40	1½"	42.8	43.1	1.9	5.5m	± 0.1m
50	2"	55.7	56.0	2.0	5.5m	± 0.1m

Pipe Dimension of BS 4514; AS/NZS1260; BS EN 1329

Size		O.D.		Min.	Pipe	Tolerance
mm	inch	min.	max.	W.T.	Length	
65	2½"	68.7	69.1	2.7	5.5m	± 0.1m
80	3"	82.3	82.7	3.2	5.5m	± 0.1m
100	4"	110.0	110.4	3.2	5.5m	± 0.1m
150	6"	160.0	160.5	3.2	5.5m	± 0.1m

Pipe Dimension of AS/NZS1260; BS EN 1329

Size		O.D.		Min.	Pipe	Tolerance
mm	inch	min.	max.	W.T.	Length	
200	8"	200.0	200.6	3.9	5.5m	± 0.1m

Working Temperature

RKS SWV systems may be used to convey liquids with a maximum temperature of 76°C (BS4514) and 90°C (BS5255) when subjected to continuous flow.
Intermittment discharges of up to 100° C may occur provided they are of less than 2 minutes duration.

Diameters

Diameters of uPVC pipes are referenced by their 'Nominal Size' or simply 'Size' (symbol DN, in accordance with international practice).

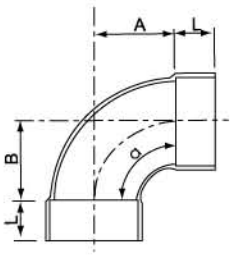
Joints

RKS uPVC SWV systems primarily use solvent weld jointing.
The conversion to a seal ring expansion joints is made by adding a Seal Ring Adaptor to the socket of fittings.

Chemical Discharges

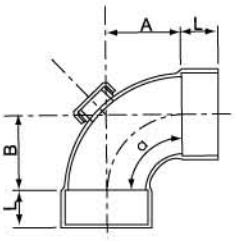
RKS uPVC SWV systems are generally resistant to most household chemicals and they can be discharged to the public sewer system.

88° Bends



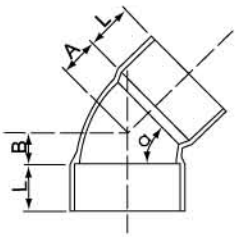
CODE	SIZE	Angle	L	A	B	Socket	Ctn Qty
850	32	88°	25	29	29	F & F	220
851	40	88°	28	36	36	F & F	144
852	50	88°	31	40	40	F & F	110
8525	65	88°	40	62	62	F & F	80
853	80	88°	45	73	73	F & F	40
854	100	88°	53	116	116	F & F	19
856	150	88°	80	145	145	F & F	6

88° Bends with I.O.



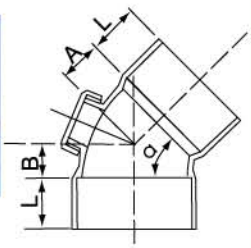
CODE	SIZE	Angle	L	A	B	Socket	Ctn Qty
850IO	32	88°	25	29	29	F & F	220
851IO	40	88°	28	37	37	F & F	144
852IO	50	88°	31	40	40	F & F	110
8525IO	65	88°	40	62	62	F & F	80
853IO	80	88°	45	73	73	F & F	40
854IO	100	88°	53	116	116	F & F	19
856IO	150	88°	80	145	145	F & F	6

45° Bends



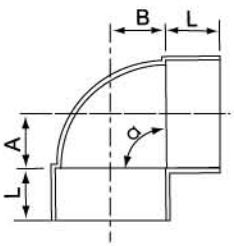
CODE	SIZE	Angle	L	A	B	Socket	Ctn Qty
450	32	45°	25	10	10	F & F	372
451	40	45°	30	11	11	F & F	200
452	50	45°	33	17	17	F & F	110
4525	65	45°	42	22	22	F & F	90
453	80	45°	45	22	22	F & F	80
454	100	45°	56	29	29	F & F	32
456	150	45°	76	34	11	F & F	12

45° Bends with I.O.



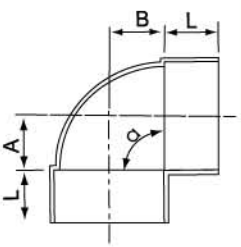
CODE	SIZE	Angle	L	A	B	Socket	Ctn Qty
450IO	32	45°	25	10	10	F & F	288
451IO	40	45°	30	11	11	F & F	150
452IO	50	45°	33	17	17	F & F	80
4525IO	65	45°	42	22	22	F & F	75
453IO	80	45°	45	22	22	F & F	65
454IO	100	45°	56	29	29	F & F	30
456IO	150	45°	76	34	11	F & F	12

90° Elbows



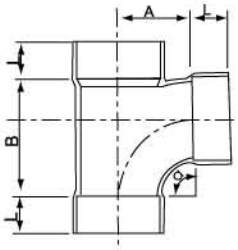
CODE	SIZE	Angle	L	A	B	Socket	Ctn Qty
900G	32	90°	23	20	20	F & F	300
901G	40	90°	29	23	23	F & F	200
902G	50	90°	30	30	30	F & F	100
903G	80	90°	46	42	42	F & F	60
904G	100	90°	55	61	61	F & F	30

90° Elbows with I.O.



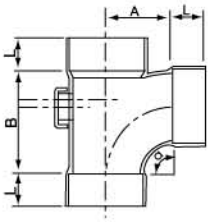
CODE	SIZE	Angle	L	A	B	Socket	Ctn Qty
904GIO	100	90°	55	61	61	F & F	26

88° Tees



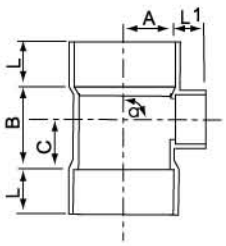
CODE	SIZE	Angle	L	A	B	Socket	Ctn Qty
J100	32	88°	25	31	65	F & F	160
J150	40	88°	28	32	63	F & F	110
J200	50	88°	31	42	70	F & F	60
J250	65	88°	40	62	91	F & F	45
J300	80	88°	47	62	103	F & F	30
J400B	100	88°	51	99	148	F & F	2
J600	150	88°	78	142	225	F & F	4

88° Tees with I.O.



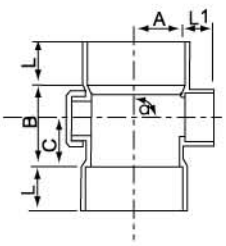
CODE	SIZE	Angle	L	A	B	Socket	Ctn Qty
J100IO	32	88°	25	31	65	F & F	120
J150IO	40	88°	28	32	63	F & F	90
J200IO	50	88°	31	42	70	F & F	45
J250IO	65	88°	40	62	91	F & F	30
J300IO	80	88°	47	62	103	F & F	24
J400BIO	100	88°	51	99	148	F & F	12
J600IO	150	88°	78	142	225	F & F	4

88° Reducing Tees



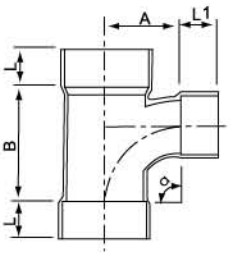
CODE	SIZE	Angle	L	L1	A	B	C	Socket	Ctn Qty
J155	40 x 32	88°	30	26	24	38	20	F & F	110
J210	50 x 32	88°	33	26	30	40	21	F & F	84
J215	50 x 40	88°	33	30	30	46	23	F & F	80
J420	100 x 50	88°	51	34	55	101	51	F & F	24

88° Reducing Tees with I.O.



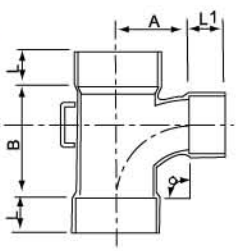
CODE	SIZE	Angle	L	L1	A	B	C	Socket	Ctn Qty
J210IO	50 x 32	88°	33	-	35	31	-	F & F	58
J215IO	50 x 40	88°	33	-	39	31	-	F & F	58
J420IO	100 x 50	88°	51	34	55	101	51	F & F	24

88° Long Radius Tees



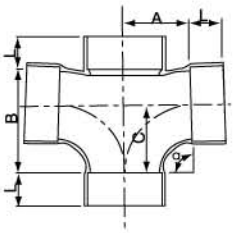
CODE	SIZE	Angle	L	A	B	L1	Socket	Ctn Qty
LJ320	80 x 50	88°	45	57	70	31	F & F	45
LJ430	100 x 80	88°	52	70	101	45	F & F	16
LJ640B	150 x 100	88°	76	105	146	52	F & F	8

88° Long Radius Tees with I.O.



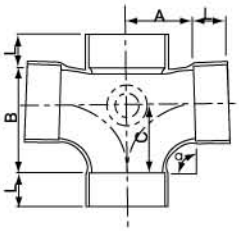
CODE	SIZE	Angle	L	A	B	L1	Socket	Ctn Qty
LJ320IO	80 x 50	88°	45	57	70	31	F & F	36
LJ430IO	100 x 80	88°	52	70	101	45	F & F	16
LJ640BIO	150 x 100	88°	76	105	146	52	F & F	8

88° Cross Tees



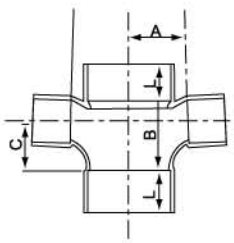
CODE	SIZE	Angle	L	A	B	C	Socket	Ctn Qty
J222	50 x 50	88°	30	40	70	35	F & F	50
J333	80 x 80	88°	45	71	110	85	F & F	15
J444	100 x 100	88°	50	98	146	102	F & F	9

88° Cross Tees with I.O.



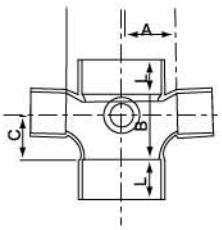
CODE	SIZE	Angle	L	A	B	C	Socket	Ctn Qty
J444IO	100 x 100	88°	50	98	146	102	F & F	9

88° Reducing Cross Tees



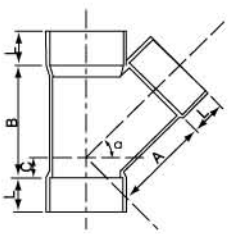
CODE	SIZE	Angle	L	A	B	C	Socket	Ctn Qty
J322	80 x 50	88°	45	42	92	52	F & F	34
J422	100 x 50	88°	50	58	105	57	F & F	24

88° Reducing Cross Tees with I.O.



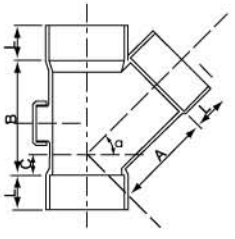
CODE	SIZE	Angle	L	A	B	C	Socket	Ctn Qty
J422IO	100 x 50	88°	50	58	105	57	F & F	20
J644IO	150 x 100	88°	78	120	162	107	F & F	3

45° Tees



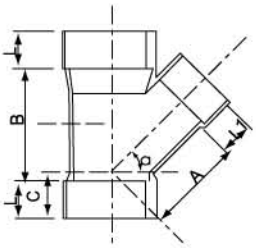
CODE	SIZE	Angle	L	A	B	C	Socket	Ctn Qty
Y150	40	45°	28	68	84	15	F & F	80
Y200	50	45°	31	74	96	22	F & F	60
Y300	80	45°	46	104	118	24	F & F	30
Y400G	100	45°	51	147	162	28	F & F	12
Y600	150	45°	78	202	244	40	F & F	4

45° Tees with I.O.



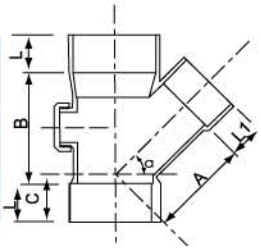
CODE	SIZE	Angle	L	A	B	C	Socket	Ctn Qty
Y150IO	40	45°	28	68	84	15	F & F	75
Y200IO	50	45°	31	74	96	22	F & F	60
Y300IO	80	45°	46	104	118	24	F & F	22
Y400IO	100	45°	51	147	162	28	F & F	12
Y600IO	150	45°	78	202	244	40	F & F	4

45° Reducing Tees



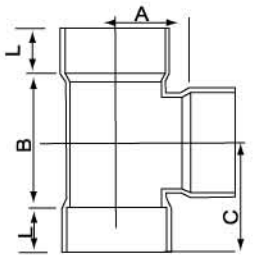
CODE	SIZE	Angle	L	L1	A	B	C	Socket	Ctn Qty
Y320	80 x 50	45°	43	34	107	109	56	F & F	32
Y420	100 x 50	45°	52	32	115	103	50	F & F	24
Y430	100 x 80	45°	51	45	132	131	63	F & F	18
Y640	150 x 100	45°	8	51	159	224	42	F & F	5

45° Reducing Tees with I.O.



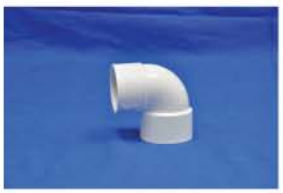
CODE	SIZE	Angle	L	L1	A	B	C	Socket	Ctn Qty
Y320IO	80 x 50	45°	43	34	107	109	56	F & F	37
Y420IO	100 x 50	45°	52	32	115	103	50	F & F	24
Y430IO	100 x 80	45°	51	45	132	131	63	F & F	16
Y640IO	150 x 100	45°	78	51	159	224	42	F & F	5

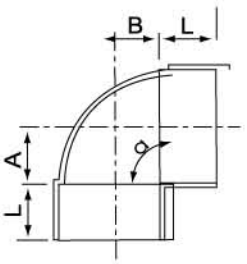
90° Tees



CODE	SIZE	Angle	L	A	B	C	Socket	Ctn Qty
TJ200G	50	90°	32	32	58	61	F & F	60
TJ400G	100	90°	49	60	118	108	F & F	20

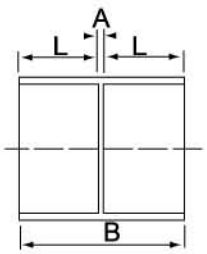
90° Faucet Elbows





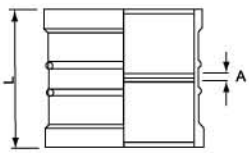
CODE	SIZE	Angle	L	A	B	Socket	Ctn Qty
F901G	40 x 1½"	90°	30	23	23	F & T	150

Plain Couplings



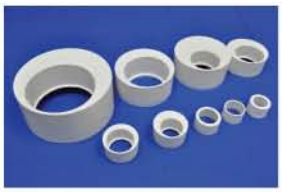
CODE	SIZE	L	A	B	Socket	Ctn Qty
C100	32	25	2	52	F & F	484
C150	40	24	3	51	F & F	440
C200	50	31	3	65	F & F	216
C250G	65	40	2	83	F & F	150

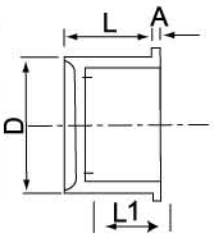
Couplings



CODE	SIZE	L	A	Socket	Ctn Qty
110.3	80	92	4	F & F	120
110.4	100	104	4	F & F	48
110.6	150	157	3	F & F	18

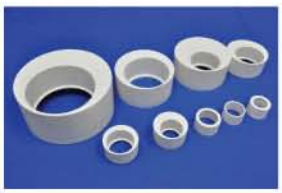
Reducing Bushes-Concentric

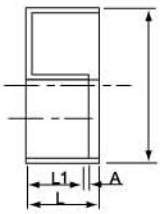




CODE	SIZE	L	L1	A	D	Socket	Ctn Qty
R108	32 x 20	24	22	-	36	M & F	1560
R110G	32 x 25	23	21	-	37	M & F	1100
R150	40 x 32	24	22	-	43	M & F	1100
R252	65 x 50	39	34	5	71	M & F	175

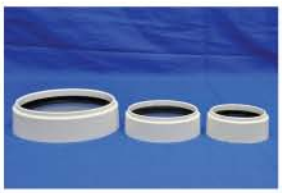
Reducing Bushes-Eccentric

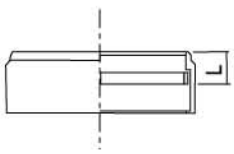




CODE	SIZE	L	L1	A	D	Socket	Ctn Qty
RE210	50 x 32	32	25	2	56	M & F	441
RE215	50 x 40	34	28	4	56	M & F	504
RE320	80 x 50	40	30	3	83	M & F	180
RE420	100 x 50	50	49	4	109	M & F	84
RE430	100 x 80	50	44	5	110	M & F	84
RE640	150 x 100	76	50	4	160	M & F	45

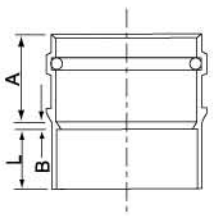
Seal Ring Adaptors





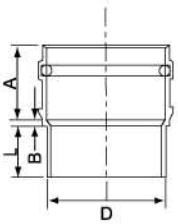
CODE	SIZE	L	Socket	Ctn Qty
109.3	80	21	F & F	140
109.4	100	21	F & F	90
109.6	150	26	F & F	60

Expansion Couplings



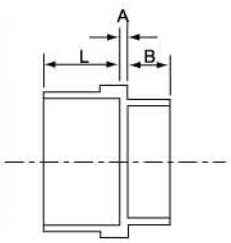
CODE	SIZE	L	A	B	Socket	Ctn Qty
X150G	40	28	49	2	F & F	150
X300	80	39	60	4	F & F	80
X400	100	51	68	4	F & F	48
X600	150	76	97	7	F & F	16

Caulking Bushes



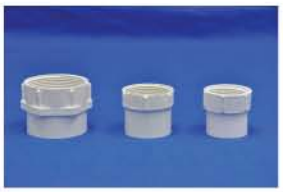
CODE	SIZE	L	A	B	D	Socket	Ctn Qty
XC200M	50	33	60	-	61	F & F	112
XC250M	65	41	68	-	75	F & F	68
XC400M	100	51	92	5	110	F & F	33

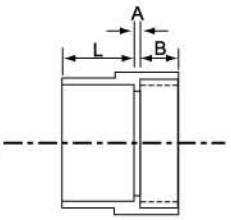
Male Couplings



CODE	SIZE	Thread	L	A	B	Socket	Ctn Qty
CM100	32	1¼"	28	3	22	F & T	500
CM150	40	1½"	28	3	21	F & T	300
CM200	50	2"	34	3	24	F & T	200

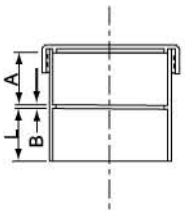
Female Couplings





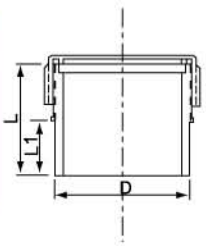
CODE	SIZE	Thread	L	A	B	Socket	Ctn Qty
CF100	32	1¼"	26	3	18	F & T	400
CF150	40	1½"	28	3	15	F & T	405
CF200	50	2"	30	3	18	F & T	196

Access Caps



CODE	SIZE	Thread	L	A	B	Socket	Ctn Qty
CA100	32	1¼"	27	22	-	F	400
CA150	40	1½"	28	16	3	F	280
CA200	50	2"	34	19	3	F	168
CA300	80	3"	44	17	-	F	80
CA400	100	4"	50	21	-	F	36

Access Plugs

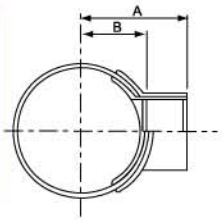


CODE	SIZE	Thread	L	L1	D	Socket	Ctn Qty
CA150S	40	1½"	47	28	42	M	250
CA200S	50	2"	56	34	55	M	192
CA400S	100	4"	107	51	110	M	36

Boss Adaptors

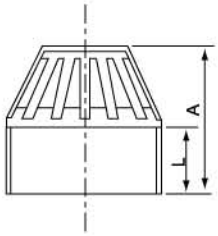
CODE	SIZE	Thread	Ctn Qty
BA100	32	1¼"	420

Boss Connectors



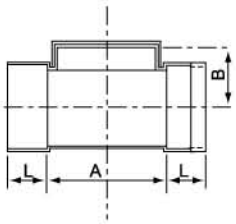
CODE	SIZE	A	B	Ctn Qty
BC420	100 x 50	91	55	150

Vent Cowls



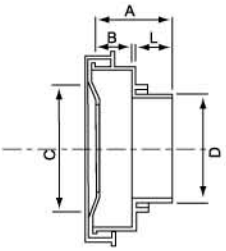
CODE	SIZE	L	A	Socket	Ctn Qty
V200	50	25	64	F	378
V300	80	25	73	F	120
V400	100	25	85	F	72
V600	150	25	100	F	30

Test Openings



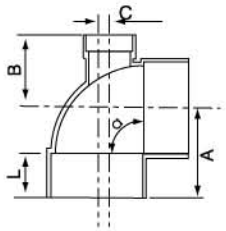
CODE	SIZE	L	A	B	Socket	Ctn Qty
T300	80	45	86	64	F & F	42
T400	100	51	136	118	F & F	16
T600	150	78	157	107	F & F	5

WC Pan Connectors



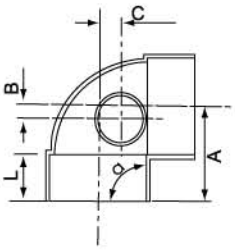
CODE	SIZE	L	A	B	C	D	Socket	Ctn Qty
PC400	100	30	83	49	78	103	M & F	48

90° Top Vent Elbows



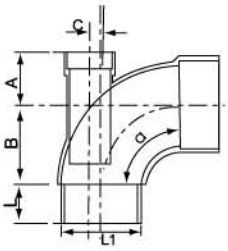
CODE	SIZE	Angle	L	A	B	C	Socket	Ctn Qty
904-2VG	100 x 50	90°	54	116	90	16	F & F	26
904IO-2VG	100 x 50	90°	54	116	90	16	F & F	24

90° Side Vent Elbows



CODE	SIZE	Angle	L	A	B	C	Socket	Ctn Qty
904-2SVG	100 x 50	90°	54	116	90	16	F & F	24
904IO-2SVG	100 x 50	90°	54	116	90	16	F & F	24

92° Top Vent Bends



CODE	SIZE	Angle	L	L1	A	B	C	Socket	Ctn Qty
924-2V	100 x 50	92°	56	110	56	83	16	F & F	20
924IO-2VG	100 x 50	92°	51	-	152	78	56	F & F	20

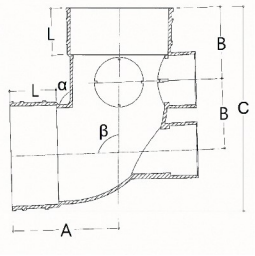
Ventilation Tee

CODE	SIZE	Socket	Ctn Qty
VT420	100 x 50	F	40

Hose Cap
(Air conditioner drainage)

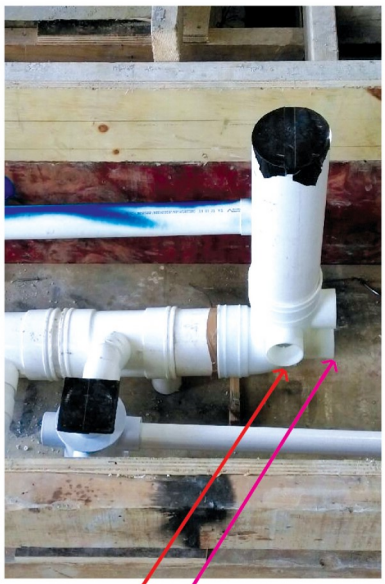
CODE	SIZE	Socket	Ctn Qty
HC100	32	F	500

Multipurpose High Vent Elbow



*2 nos. of plugs are included for an elbow

CODE	SIZE	α	β	L	A	B	C	Socket	Ctn Qty
MV-422	100 x 50	90°	92°	52	112	81	222	F & F	10



3 nos. bosses for ventilation pipes

A boss for waste pipes or cleaning eye

According to the regulations of Building Department, it is essential to use a standard fitting - Multi-purpose High Vent Elbow to ensure the ventilation pipes being higher than the soil waste pipes in sunken. In order to have a greater flexibility, three nos. of bosses with different directions are equipped. 2 nos. of plugs are included for an elbow to clog the bosses. Besides, a lowest waste boss can be used as a cleaning eye or connection for other waste pipes.

* Our Multipurpose High Vent Elbow is a patent pending fitting
Patent Pending - Patent Application No. 17106243.3
Registered Design Pending - Registered design application No. 1701232.1
Test report from Castco - Reference No.NW0170802-001

Handling and Storage

uPVC pipe is very robust, but still can be damaged by rough handling. Pipes should not be thrown from trucks or dragged over rough surfaces.

Transportation of uPVC Pipes

While the pipes are in transit and they should be well secured and supported. Chains or wire ropes may be used only if suitably padded to protect the pipe from damage.

Pipes may be unloaded from vehicles by rolling them gently down with timbers, care being taken to ensure that the pipes do not fall onto one another or onto any hard or uneven surfaces.

Storage of uPVC Pipes

Pipes should be given adequate support at all times. Pipes should be stacked in layers with sockets placed alternate ends of the stacks and with the sockets protruding.

Support and Expansion Joint (Recommendations)

The table below shows the maximum support spacing and expansion joints in metres and for uPVC pipe.

Size	Maximum Supporting Spacing		Maximum Expansion Joint Distances
DN mm	Horizontal m	Vertical m	Vertical and Horizontal m
32	0.5	1.2	2.0
40	0.5	1.2	2.0
50	0.9	1.2	2.0
65	0.9	2.0	4.0
80	1.0	2.0	4.0
100	1.0	2.0	4.0
150	1.0	2.0	4.0

Average Number of Joints per 500ml Solvent Cement for SWV Application

The following table provides an indication as to the number of joints that are made per 500ml container of Priming Fluid and Solvent Cement.

Pipe Size (DN)	Priming Fluid	Solvent Cement
32	325	95
40	250	70
50	150	42
65	125	35
80	100	30
100	70	25
150	45	15

Jointing of uPVC Pipes

Two critical points to the solvent cement jointing procedure are:

- The solvent cement and priming fluid used should be produce in accordance with AS/NZS 3879 - Solvent cements and priming fluid for use with uPVC pipes and fittings, or BS4346 : Part 3 or BSEN-ISO1452 Part 1-5.
- Solvent cement jointing is a trade skill and should be executed only by qualified persons.

The following procedures should be strictly observed for best results. The steps and precautions will allow easy and efficient assembly of joints.

Incorrect procedures and short cuts will lead to poor quality joints and possible system failure.

Precautions to achieve an effective joint

To achieve a leak free and safe joint these additional precautions should be followed:

Cutting and Jointing

a) Make sure that the end of each pipe is square in its socket and in the same alignment and grade as the preceding pipes or fittings. Cut the pipe using a fine toothed saw and mitre box or circular saw with an abrasive disc. To ensure full interference fit, the last few millimetres of spigot count.

b) Create a 0.5mm chamfer, as a sharp edge on the spigot will wipe off the solvent and reduce the interface area. Remove all swarf and burrs so that later filings cannot become dislodged and jam taps and valves.

c) Do not attempt to joint pipes at an angle. Curved lines should be jointed without stress, then curved after the joint is cured. Support the spigot and socket clear of the ground when jointing, this will avoid contamination with sand or soil.

d) An unsatisfactory solvent cement joint cannot be re-executed, nor can previously cemented spigots and socket be re-used. To effect repairs, cut out the joint and remake or use mechanical repair fittings.

Apply Correct Solvent Quantity

The correct amount of solvent is a uniform self levelling layer without runs, achieved by experience and judgment. Too much solvent will form pools and continue to attack and weaken the pipe. Too little solvent will require you to brush out excessively, the solvent will quickly evaporate with vigorous brushing.

Take care not to spill solvent cement onto pipes or fittings. Accidental spillage should be wiped off immediately.

Adverse Weather

High temperature and air movement will radically increase the loss of solvent. All solvent cement jointings should not be performed when the temperature is more than 35°C. Some form of protection should be provided when jointing in windy and dusty conditions.

When jointing under wet and very cold conditions, make sure that the mating surfaces are dry and free from ice, as moisture may prevent the solvent cement from obtaining its maximum strength.

Keep the containers stored below 30℃. The solvent cement lids should be tightly sealed when not in use to prevent evaporation of the solvent. Do not use solvent cement that has gone cloudy or has started to gel in the can.

Health

If solvent cement or priming fluid is swallowed, do not induce vomiting, dilute by giving two glasses of water, and seek medical advice immediately.

Average Number of Joints per 500ml Solvent Cement for Pressure Application

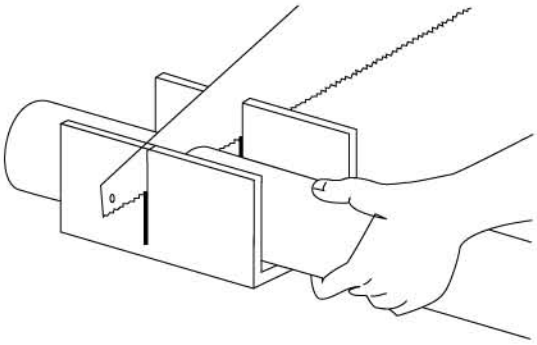
The following table provides an indication as to the number of joints that are made per 500ml container of Priming Fluid and Solvent Cement.

Pipe Size (DN)	Priming Fluid	Solvent Cement
15	1050	300
20	625	175
25	450	130
32	325	95
40	250	70
50	150	42
65	125	35
80	100	30
100	70	25
125	60	20
150	45	15
200	25	10
225	15	7
250	12	6
300	12	5
375	12	5

Procedure

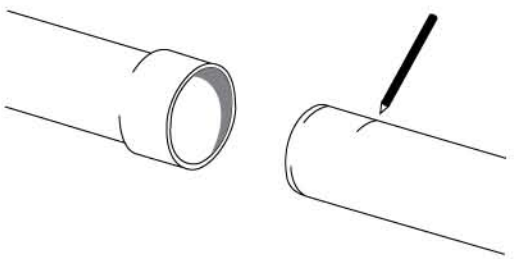
1. Prepare the Pipe

Before jointing, check that the pipe has been cut square and all the burrs are removed from the inside and outside edge. Remove the sharp edge from the outside and inside of the pipe with a deburring tool. Do not create a large chamfer that will trap a pool of solvent cement. Remove all dirt, swarf, and moisture from spigot and socket.



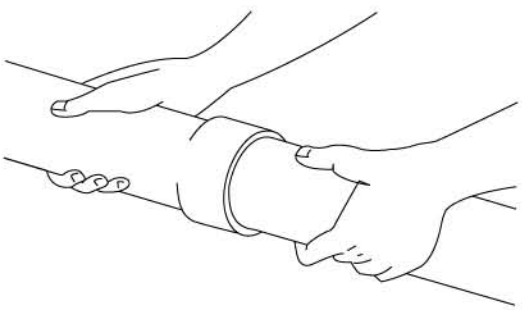
2. Witness Mark the Pipe

It is essential to be able to determine when the spigot is fully home in the socket. Mark the spigot with a pencil line 'Witness Mark' at a distance equal to the internal depth of the socket. Other marking methods may be used provided that they do not damage or score the pipe.



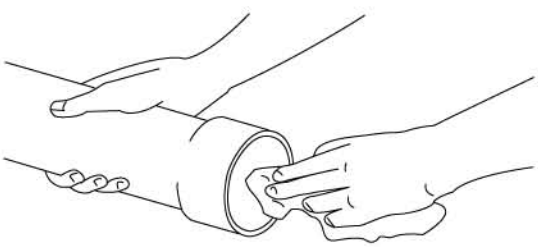
3. 'Dry Fit' the Joint

'Dry fit' the spigot into the socket, check the pipe for proper alignment. Any adjustments for the correct fit can be made now, not later. For pressure pipes, the spigot should interfere in the socket before it is fully inserted to the pencil line. Ovality in the pipe and socket will automatically be re-rounded in the final solvent cementing process, but heavy walled pipe may give a false indication of the point of interference. Do not attempt to make a pressure pipe joint that does not have an interference fit. Contact Vinidex if this occurs.



4. Prepare with Priming Fluid

Dry, degrease and prime the spigot and socket with a lint free cloth (natural fibres) dampened with Vinidex priming fluid. Priming is vitally important, as it etches off the gloss from the uPVC , it softens the uPVC surface for the solvent cement's effective bond. Use protective polyethylene gloves. Priming fluids are to be used before solvent cementing, prime and solvent cement one joint at a time.



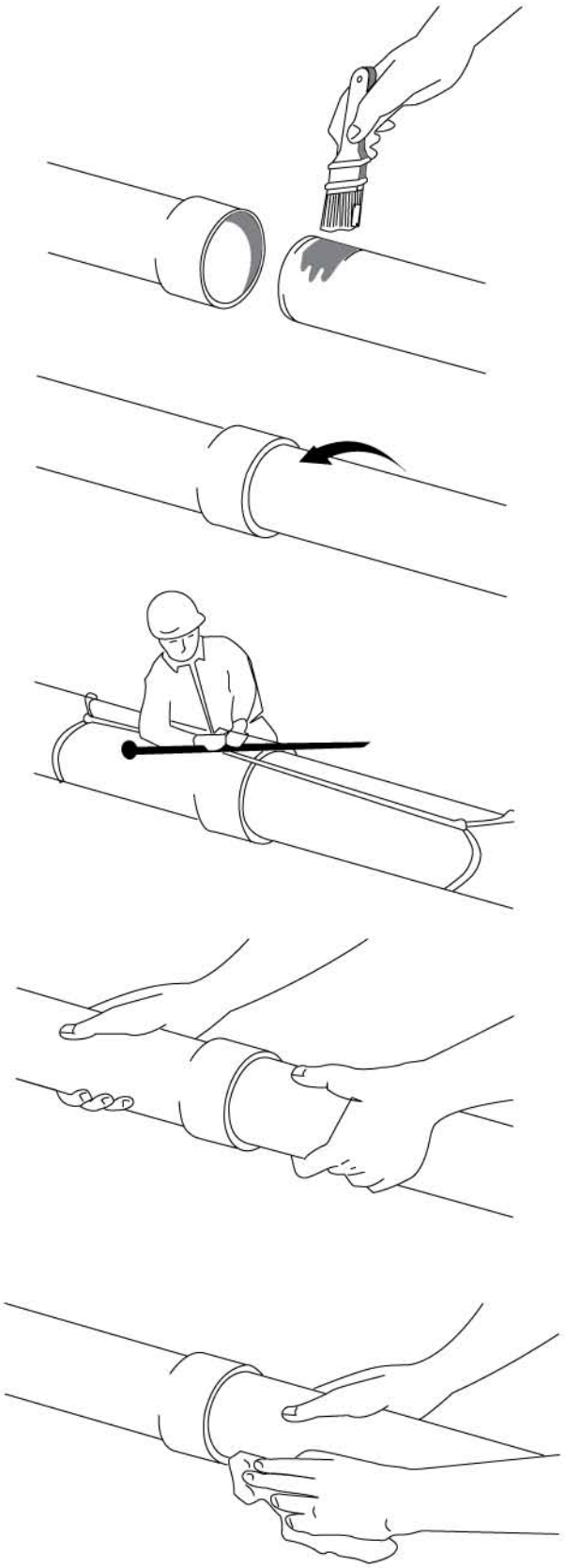
5. Brush Selection

The brush should be large enough to apply the solvent cement to the joint in a maximum of 30 seconds.

Approximately one third the pipe diameter is a good guide. Do not use the brush attached to the lid for pipes over 100mm in diameter. Decanting is not available, and excess should never be returned to the can.For large diameter pipes, it may be necessary to decant to an open larger vessel for a large brush to be used, in this case decant for one joint at a time.

Table of Recommended Brush Selection

Diameter size of pipe mm	Recommended size of brush mm
15, 20, 25, 32, 40, 50	Use brush supplied
65, 80	25
100, 125	38
150	50
200	63
225, 250	75
300, 375	100



6. Apply Solvent Cement

Using a suitably sized brush, apply a thin even coat of solvent cement to the internal surface of the socket first. Solvents will evaporate faster from the exposed spigot that from the socket. Special care should be taken to ensure that excess solvent cement isn't built up at the back of the socket (pools of solvent will continue to attack the uPVC and weaken the pipe). Then apply a heavier,even coat of solvent cement up to the witness mark on the spigot. Ensure the entire surface is covered. A 'dry' patch will not develop a proper bond, even if the mating surface is covered. An unlubricated patch may also make it difficult to obtain full insertion.

7. Inserting the Spigot

Make the joint immediately, in a single movement. Do not stop halfway, since the bond will start to set immediately and it will be almost impossible to insert further. It will aid distribution of the solvent cement to twist the spigot into the socket so that it rotates a bout a ¼ turn whilst (not later) inserting, but where this cannot be done, particular attention should be paid to uniform Solvent application.

8. Push the spigot Home

The spigot must be fully homed the full depth of the socket. The final 10 percent of spigot penetration is vital to the interference fit. Mechanical force will be required for larger joints. Be ready in advance. Pip pullers are commercially available for this purpose. Polyester pipe slings are very useful for gripping a pipe, in order to apply a winch or level.

9. Hold the Joint

Hold the joint against movement and rejection of the spigot for a minimum of 30 seconds. Disturbing the joint during this phase will seriously impair the strength of the joint.

10. Wipe off Excess Solvent Cement

For a neat professional joint, with a clean rag wipe off excess solvent cement immediately from the outside of the joint.

11. Do Not Disturb the Joint

Once the joint is made, do not disturb it for five minutes or rough handle it for at least one hour. Do not fill the pipe with water for at least one hour after making the last joint. Do not pressurise the line until fully cured.

12. Cure the Joint

The process of curing, is a function of temperature, humidity and time. Joints cure faster when the humidity is low and the temperature is high. The higher the temperature the faster joints will cure. As a guide, at a temperature of 16℃ and above, 24 hours shoud be allowed, at 0℃, 48 hours is necessary.

Connection to Cast Iron Pipe

Caulking bush should be used and joints uPVC pipes to cast iron pipe socket with approved epoxy jointing compound or 3: 1 sand cement. Lubricate caulking bush seal ring and insert uPVC pipe.

Connection Waste Pipes to Soil Stack

Boss connector should be used.

1. Cut correct hole size and deburr
2. Remove swarf and lean mating surfaces
3. Apply solvent cement to all mating surfaces
4. Pass inner component outward through hole from the inside pipe and push the outer component firmly on to it ensuring that the key and key way are lined up.
5. Insert toggle bolt and screw up until boss is fully closed with flanges in contact with the pipe both inside and outside

Connection to WC

WC Connector should be used.

1. Ensure that rubber ring seal is correctly located on rim of connector.
2. Lubricate WC spigot and rubber seal only
3. Insert WC spigot into connector and push together.

Limitation of Liability

This technical information is supplied as a guide by Vinidex in the interest of better understanding of the technicalities of our products and more satisfactory performance for users. It represents the most advanced technology drawn from worldwide research and field experience available to us at the time of printing.

However, the application of such technology may involve engineering judgements which cannot be correctly made without intimate knowledge of all the conditions pertaining to a specific installation. The Company does not act as a consultant in this regard, and responsibility for the use of any information or advice contained herein rests solely with the user.

No warranty, expressed or implied, (other than Statutory Warranty) is given as to content of the information or result obtained by use thereof, and Vinidex will not be held liable for any costs, direct or indirect, that may arise therefrom.

Properties of uPVC

Property	Value	Conditions and Remarks
Physical properties		
Molecular weight (resin)	140,000	cf:K57 PVC 70,000
Relative density	1.42-1.48	cf:PE0.93, GRP 1.4-2.1, CI 7-20, Clay 1.8-2.6
Water absorption	0.12%	23℃, 24hours cf: AC 18-20% AS 1711
Hardness	80	Shore D Durometer, Brinell 15, Rockwell R114, cf: HDPE 60
Impact strength - 20℃	20kJ/m2	Charpy 250μm notch tip radius
Impact strength - 0℃	8 kJ/m2	Charpy 250μm notch tip radius
Coefficient of friction	0.4	PVC to PVC cf: PE 0.25, PA 0.3
Mechanical properties		
Ultimate tensile strength	52MPA	AS 1175 Tensometer at constant strain rate cf: PE 12-20
Elongation at break	50-80%	AS 1175 Tensometer at constant strain rate cf: PE 500-900
Short term creep rupture	44MPA	Constant load 1 hour value cf: PE 10-16
Long term creep rupture	28 MPA	Constant load extrapolated 50 year value cf: PE 6-8
Elastic tensile modulus	3.0-3.3GPA	1% strain at 100 seconds cf: PE 0.6-0.8
Elastic flexural modulus	2.7-3.0 GPA	1% strain at 100 seconds cf: PE 0.5-0.7
Long term creep modulus	0.9-1.2GPA	Constant load extrapolated 50 year secant value cf: PE 0.1
Shear modulus	1.0 GPA	1% strain at 100 seconds G=E/2(1μ) cf: PE 0.2
Bulk modulus	4.7 GPA	1% strain at 100 seconds K=E/3(1-2μ) cf: PE 2.0
Poissons ratio	0.4	Increases marginally with time under load. cf: PE 0.45
Electrical properties		
Dielectric strength (breakdown)	14 - 20kV/mm	Short term, 3mm specimen
Volume resistivity	2×10^{14} Ω.m	AS 1255.1
Surface resistivity	10^{13}-10^{14} Ω.m	AS 1255.1
Dielectric constant (permittivity)	3.9(3.3)	50Hz(10^6 Hz) AS 1255.4
Dissipation factor (power factor)	0.01(0.02)	50Hz(10^6 Hz) AS 1255.4
Thermal properties		
Softening point	80-84℃	Vicat method AS 1462.5 (min. 75℃ for pipes)
Max. continuous service temp.	60℃	cf: PE 80, PP 110
Coefficient of thermal expansion	7×10^{-5}/K	7mm per 10 m per 10℃ cf: PE 18-20 $\times 10^{-5}$, CI 1.2 $\times 10^{-5}$
Thermal conductivity	0.16W/[m.K]	0 - 50℃
Specific heat	1,000J/[kg.K]	0 - 50℃
Thermal diffusivity	1.1×10^{-7} m²/s	0 - 50℃
Fire performance		
Flammability(oxygen index)	45%	ASTM D2683 Fennimore Martin test, cf: PE 17.5 PP 17.5
Ignitability index	10-12(/20)	cf: 9 - 10 when tested as pipe)
Smoke produced index	6-8(/10)	cf: 4 - 6 when tested as pipe) AS 1530
Heat evolved index	0	) Early Fire Hazard Test
Spread of flame index	0	Will not support combustion.)

Abbreviations

PE = Polyethylene
PP = Polypropylene
PA = Polyamide(nylon)
CI = Cast Iron
AC = Asbesto Cement
GRP = Glass Reinforced Pipe

Conversion of Units

1Mpa = 10bar = 9.81kg/cm² = 145 lbf / in²
1Joule = 4.186 calories = .948 $\times 10^{-3}$ BTU = .737 ft. lbf
1Kelvin = 1℃ = 1.8°F temperature differential

uPVC Corrosion Chart

The information given in this table is based on extensive tests carried out by our company and other authorities and is correct to the best of our knowledge and belief. It is intended as a guide on the suitability of Vinidex pipes and fittings for the operation under various conditions, but it must be understood that no guarantee can be given that actual results obtained will, in every case, be exactly as indicated.

KEY
S = Excellent
D = Some Attack
U = Unsuitable

Chemical	Rigid uPVC Pipe 68°F 20℃	140°F 60℃
Acetic Acid(20%)	S	S
Acetic Acid(80%)	S	D
Acetone	U	U
Alcohol (100%)	S	D
Alcohol (40%)	S	D
Aluminium chloride	S	S
Aluminium Fluoride	S	S
Aluminium Hydroxide	S	S
Aluminium Sulphate	S	S
Ammonia 0.88 SG aq.soln.	S	S
Ammonia Gas (dry)	S	S
Ammonium carbonate	S	S
Ammonium Chloride	S	S
Ammonium Hydroxide	S	S
Ammonium Nitrate	S	S
Ammonium Phosphate (ammoniacal)	S	S
Ammonium Phosphate neutral	S	S
Ammonium Sulphate	S	S
Aniline	U	U
Aniline Hydrochloride (40%aq.)	U	U
Barium Carbonate	S	S
Barium Chloride	S	S
Barium Hydroxide	S	S
Barium Sulphate	S	S
Beer	S	S
Beet Sugar liquors	S	S
Benzene or Benzol	U	U
Bleach(12.5% Active Chlorine)	S	S
Brine	S	S
Butanol (Primary Butyl Alcohol)	S	U
Calcium Carbonate	S	S
Calcium Chlorate	S	S
Calcium Chloride	S	S
Calcium Hydroxide	S	S
Calcium Hypochlorite	S	S
Carbon Dioxide (wet or dry)	S	S
Castor Oil	S	S
Chloric Acid (20%)	S	S
Chlorine Gas (dry)	S	D
Chlorine Gas (wet)	D	U
Chlorine Water	S	S
Chlorine (liquid)	U	U
Chloroacetic Acid	S	D
Chrome Alum. Sat. Soln.	S	S

Chemical	Rigid uPVC Pipe 68°F 20℃	140°F 60℃
Chromic Acid 10%	S	S
Chromic Acid 30%	S	S
Chromic Acid 50%	S	D
Cottonseed Oil	S	S
Cresylic Acid 50%	S	S
Cresylic Acid 100%	D	U
Crude Oil	S	D
Detergents (normal dilutions)	S	S
Diesel oil-Derv.	S	S
Diesel Oil -Gas	S	S
Disodium Phosphate	S	S
Ethylene Glycol	S	S
Fatty Acids	S	S
Ferric Chloride	S	S
Ferric Nitrate	S	S
Ferric Sulphate	S	S
Ferrous Chloride	S	S
Ferrous Sulphate	S	S
Fish Solubles	S	S
Fluorine Gas (wet)	S	S
Formaldehyde 40%	S	S
Formic Acid 50%	S	D
it juices-Pulp	S	S
Gallic Acid	S	S
Gas-manufactured	D	U
Gas-natural	S	S
Hydrochloric Acid	S	S
Hydrofluoric Acid 50%	S	U
Hydrogen Peroxide 50%	S	S
Hydrogen Sulphide (wet aq.soln)	S	S
Hypochlorous Acid	S	S
Linseed Oil	S	S
Magnesium Carbonate	S	S
Magnesium Chloride	S	S
Magnesium Hydroxide	S	S
Mercuric Chloride	S	S
Mercury	S	S
Methyl Chloride	U	U
Milk	S	S
Mineral Oils	S	D
Mixed acids (dilute)	D	D
Molasses	S	S
Nickel Chloride	S	S
Nickel Nitrate	S	S
Nickel Sulphate	S	S
Nitric Acid 10%	S	D
Nitric Acid 68%	D	D
Nitric Acid 90%	U	U

Chemical	Rigid uPVC Pipe 68°F 20℃	140°F 60℃
Oils and Fats-		
Animal	S	S
Mineral	S	S
Vegetable	U	U
Oleum	S	S
Oxygen	S	S
Petrol (depending upon type)	U	U
Petroleum Products (crude)	S	S
Phosgene-Gas	S	D
Phosphoric Acid (50%and 85%)	S	S
Photographic Solutions	S	S
Plating Solutions	S	S
Potassium Bromate	S	S
Potassium Chloride	S	S
Potassium Dichromate	S	S
Potassium Hydroxide	S	S
Silver Cyanide	S	S
Silver Nitrate	S	S
Sodium bicarbonate	S	S
Sodium Carbonate	S	S
Sodium Chloride	S	S
Sodium dichromate	S	S
Sodium Hydroxide	S	S
Sodium Nitrate	S	S
Spirits (Whisky, etc)	S	S
Sulphur dioxide (dry)	S	S
Sulphur Dioxide (wet)	S	D
Sulphur Trioxide-Gas	S	S
Sulphuric Acid 10%-75%	S	S
Sulphuric Acid 75%-90%	S	D
Sulphuric Acid 95%	D	U
Sulphurous Acid	S	S
Tri-sodium Phosphate	S	S
Urine	S	S
Vinegar	S	S
Water (acidic mine water)	S	S
Water (fresh)	S	S
Water (salt)	S	S
Wetting Agents (dil.)	S	S
White liquor	S	S
Wines and Spirits	S	S
Xylene or xylol	U	U
Zinc chloride	S	S
Zinc Nitrate	S	S
Zinc Sulphate	S	S

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