



PVC-U soil, vent & waste system
Solvent cement welding system made of fire-resistant
PVC-U (Me Class)

PVC-U

Soil, vent & waste system

Pipes and fittings for quality guarantee

The PVC pipes and fittings used in the drainage systems must conform to the sector standard which is established by the National Italian Committee for Standardisation (UNI); this conformity as per Art. 7 of Italian Law 46/90 must be certified by the mark issued by the Italian Institute of Plastics (IIP):



With regard to this, we remember that REDI only guarantees the perfect operation of the PVC ME drainage system when all its parts (pipes and fittings) are their own production.

Standards and marks for the total protection

REDI PVC solvent socket fittings are Class Me which, according to the French standard, corresponds to the highest level of protection against fires.

This feature is periodically certified by the Laboratoire National D'Essaie 

The mark certifying the conformity of  Me PVC fittings for building water drainage systems with the French **CSTB** standard guarantees the respect of the dimensional tolerances for the designs provided by the NF EN1329 and NF T 54-030 standards (the remaining products conform to the basic UNI EN1329 standard).

The detailed list of certified products is available on request.

General characteristics of PVC

- Name: Polyvinyl chloride
- Colour: Grey RAL 7037
- Conditions of use: Maximum temperature of the waste water not above 70°.

Maximum temperature of 95° for discontinuous drainage of the normal household appliances.

Mechanical resistance

	Testing method	Unit of measure	Measured value*
Yield point	ISO 527	MPa	53
Tensile strength	ISO 527	MPa	43
Elongation at break	ISO 527	%	150
Modulus of elasticity	ISO 527	MPa	≥ 3,000

Physical properties

	Testing method	Unit of measure	Measured value*
•Average density	ISO 1183	g/cm ³	1.43
•Softening temperature (VICAT)	EN 727	°C	80
• Coefficient of linear thermal expansion		mm/m x °C	0.07
•Thermal conductivity		W/m x °C	0.16
•Surface electrical resistivity		Ω	> 1012

- Resistance to decay: PVC is completely resistant to decay.
- Biological resistance: The algae and bacteria present in the waste water do not have any effect on the PVC pipes.
- The PVC is not affected by rodents.
- Abrasion resistance: The pipes and fittings conforming to EN1329 standard are abrasion resistant.
- Hydraulic roughness: The internal surfaces of the pipes and fittings conforming to EN1329 standard are hydraulically smooth. REDI couplings and fittings are designed to ensure good hydraulic performance. For flow rate calculations on PVC branches, an effective roughness coefficient can be used $k = 0.25$ mm.
- For flow rate calculations on PVC branches, an effective roughness coefficient can be used $k = 0.25$ mm. (See installation guide).
- Chemical resistance: PVC is particularly resistant to chemical attacks and can therefore be used without problems for the drainage of industrial water containing chemical compounds in the pH range between 2 (acid) and 12 (alkaline).

PVC is also one of the few plastic materials that can be joined with solvent socket, which simplifies and speeds up many installation operations.

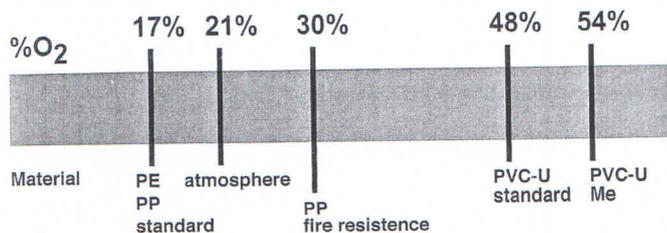
In the following page, a summarising table contains information obtained from laboratory experiments.

Fire resistance

The oxygen level contained in the different materials used for building the most common sanitary drainage systems is quoted here below.

The higher the oxygen level is, the higher the material's fire resistance is.

It is clear that PVC Me class is the most fire-resistant material for sanitary drainage systems.



NF Me

As to achieve the new NF Me branding, the minimum European fire resistance classification required for PVC is B d0s3.

- **B** characterizes PVC reaction to fire (replacing the former M1)
- **d0** characterizes the propensity to leave fire droplets fall, that may propagate a fire, particularly from floor to floor. PVC does not release any droplets.
- **S2** characterizes the propensity to release smoke.

However, this branding is going one step further and guarantees fire resistance as well.

A minimum expansion rate of 800% must be actually certified by a qualified independent laboratory (LNE – Laboratoire National d'Essais).

Reaction to Fire:

With regard to building materials, it is important to assess the destructive fire reaction and resistance properties.

PVC is a fire-proof polymer and in the event of fire it shows a better behaviour than other traditional plastic materials.

REDI fittings have a **B s2 d0 EUROCLASS FOR REACTION TO FIRE**, tested and classified by the French Laboratoire Nationale d'Essaie LNE as provided for by the EN13501:2007 European standard which is applied to plastic drainage systems.

Therefore these:

are very difficult to ignite, as letter "B" refers to a fire reaction scale containing the classes A1, A2, B, C, D, E, F where the performance decreases progressively from class A1 (non-flammable material such as concrete and ceramic) to class F (non-classifiable material and therefore the most dangerous one) do not spread fire via burning droplets. In fact "d0" is applicable to products which do not spread burning droplets.

The **NF-Me** mark is reserved only for products that, like Redi fittings, have an excellent Euroclass for reaction to fire (a minimum level of B s3 d0 is required to apply for the mark **NF-Me**).

However, the **NF-Me** mark is designed to guarantee the user an even greater level of protection.

The mark **NF-Me** certifies that when subjected to the effects of heat, the material has a minimum expansion capacity equal to 800 times the thickness of the walls (800% minimum expansion). This property of **NF-Me** certified products enables the cross-section of the pipe or the fitting to be obstructed in the event of a fire, consequently avoiding the spreading of the flame.

PVC - Chemical resistance

PVC-U

Product	Conc. %	Temp. 20 °C	Temp. 60 °C	Product	Conc. %	Temp. 20 °C	Temp. 60 °C
ACETIC ACID	60	S	L	HYDROFLUORIC ACID	60	L	NS
ACETIC ACID MONOCHLORIDE	SOL.	S	L	HYDROGEN	100	S	S
ACETIC ALDEHYDE	100	NS	-	HYDROGEN DIOXIDE	30	S	S
ACETIC ANHYDRIDE	100	NS	NS	HYDROGEN SULPHIDE	100	S	S
ACETONE	100	NS	NS	IRON CHLORIDE	SOL. SAT.	S	S
ADIPIC ACID	SOL. SAT.	S	L	LACTIC ACID	10	S	L
ALLYL ALCOHOL	90	L	S	LACTIC ACID	10-90	L	NS
ALUMINUM CHLORIDE	SOL. SAT.	S	S	LEAD ACETATE	SOL. SAT.	S	S
ALUMINUM SULPHATE	SOL. SAT.	S	S	LEAD TETRAETHYL	100	S	-
AMMONIA (AQUEOUS)	100	L	NS	MAGNESIUM CHLORIDE	SOL. SAT.	S	S
AMMONIA (GAS)	100	S	S	MAGNESIUM SULPHIDE	SOL. SAT.	S	S
AMMONIA (SOLUTION)	SOL. DIL.	S	L	MALEIC ACID	SOL. SAT.	S	L
AMMONIUM CHLORIDE	SOL. SAT.	S	S	METHYL ALCOHOL	100	S	L
AMMONIUM FLUORIDE	20	S	L	METHYL METHACRYLATE	100	NS	NS
AMMONIUM NITRATE	SOL. SAT.	S	S	METHYLENE CHLORIDE	100	NS	NS
AMMONIUM SULPHATE	SOL. SAT.	S	S	MILK		S	S
AMYL ACETATE	100	NS	NS	NICKEL SULPHIDE	SOL. SAT.	S	S
AMYL ALCOHOL	100	S	L	NICOTINIC ACID	CONC.	S	S
ANILINE	100	NS	NS	NITRIC ACID	<46	S	L
ANILINE	SOL. SAT.	NS	NS	NITRIC ACID	46-98	NS	NS
ANILINE HYDROCHLORIDE	SOL. SAT.	NS	NS	OILS		S	S
ANTIMONY CHLORIDE	90	S	S	OLEIC ACID	100	S	S
ARSENIC ACID	SOL. DIL.	S	-	OLEUM	10% of SO ³	NS	NS
BEER		S	S	OXALIC ACID	SOL. DIL.	S	L
BENZALDEHYDE	0,1	NS	NS	OXALIC ACID	SOL. SAT.	S	S
BENZENE	100	NS	NS	OXIGEN	100	S	S
BENZOIC ACID	SOL. SAT.	L	NS	OZONE	100	NS	NS
BORAX	SOL. SAT.	S	L	PERCHLORIC ACID	10	S	L
BORIC ACID	SOL. DIL.	S	L	PERCHLORIC ACID	70	L	NS
BROMINE (LIQUID)	100	NS	NS	PETROL	80/20	NS	NS
BROMINE ACID	10	S	-	PHENOL	90	NS	NS
BUTADIENE	100	S	S	PHOSPHINE	100	S	S
BUTANE	100	S	-	PHOSPHOR TRICHLORIDE	100	NS	-
BUTYL ACETATE	100	NS	NS	PHOSPHORIC ACID	30	S	L
BUTYL PHENOL	100	NS	NS	PICRIC ACID	SOL. SAT.	S	S
BUTYLENE	100	S	L	POTASSIUM BICHROMATE	40	S	S
BUTYRIC ACID	20	S	L	POTASSIUM BROMIDE	SOL. SAT.	S	S
BUTYRIC ACID	98	NS	NS	POTASSIUM CHLORIDE	SOL. SAT.	S	S
CALCIUM CHLORIDE	SOL. SAT.	S	S	POTASSIUM CHROMATE	40	S	S
CALCIUM NITRATE	50	S	S	POTASSIUM CYANIDE	SOL.	S	S
CARBON DIOXIDE	100	S	S	POTASSIUM FERRICYANIDE	SOL. SAT.	S	S
CARBON SULPHIDE	100	NS	NS	POTASSIUM FERROCYANIDE	SOL. SAT.	S	S
CARBON TETRACHLORIDE	100	NS	NS	POTASSIUM HYDROXIDE	SOL.	S	S
CETYL ACID	100	S	S	POTASSIUM NITRATE	SOL. SAT.	S	S
CHLORINE (DRY GAS)	100	L	NS	POTASSIUM PERMANGANATE	20	S	S
CHLORINE (LIQUID)	SOL. SAT.	L	NS	POTASSIUM PERSULFATE	SOL. SAT.	S	L
CHLOROSULPHONIC ACID	100	L	NS	PROPANE (GAS LIQUID)	100	S	-
CHROMIC ACID	1-50	S	L	PYRIDINE	100	NS	-
CITRIC ACID	SOL. SAT.	S	S	SEA WATER		S	L
COPPER CHLORIDE	SOL. SAT.	S	S	SILVER NITRATE	SOL. SAT.	S	L
COPPER FLUORIDE	2	S	S	SOAP	SOL.	S	L
CREOSOL	SOL. SAT.	-	NS	SODIUM BENZOATE	35	S	L
CREOSOL ACID	SOL. SAT.	NS	NS	SODIUM BISULPHITE	SOL. SAT.	S	S
CROTONIC ALDEHYDE	100	NS	NS	SODIUM CHLORATE	SOL. SAT.	S	S
CYCLOHEXANOL	100	NS	NS	SODIUM FERRICYANIDE	SOL. SAT.	S	S
CYCLOHEXANONE	100	NS	NS	SODIUM HYDROXIDE	SOL.	S	L
DEVELOPING BATH		S	S	SODIUM HYPOCHLORITE	100 (13% Cl.)	S	L
DEXTRENE	SOL. SAT.	S	L	SODIUM SULPHITE	SOL. SAT.	S	L
DICHLOROETHYLENE	100	NS	NS	SUGAR	SOL. SAT.	S	S
DIGLYCOLIC ACID	18	S	L	SULPHUR ACID	SOL.	S	S
DIMETHYLAMINE	30	S	-	SULPHUR ANHYDRIDE	100 (LIQUID)	L	NS
ETHYL ACETATE	100	NS	NS	SULPHUR ANHYDRIDE	100 (DRY)	L	NS
ETHYL ACRYLATE	100	NS	NS	SULPHURIC ACID	40-90	S	L
ETHYL ALCOHOL	95	S	L	SULPHURIC ACID	96	L	NS
ETHYL ETHER	100	NS	L	TANNIC ACID	SOL.	S	S
ETHYLENE GLYCOL	CONC.	L	L	TARTARIC ACID	SOL.	S	S
FLUOSILICIC ACID	32	S	S	TIN CHLORIDE	SOL. SAT.	S	S
FORMALDEHYDE	SOL.	S	S	TOLUENE	100	NS	NS
FORMALDEHYDE	40	S	S	TRICHLOROETHYLENE	100	NS	NS
FORMIC ACID	1-50	S	L	TRIMETHYL PROPANE	<10	S	L
FURFURAL ALCOHOL	100	NS	NS	UREA	10	S	L
GLUCOSE	SOL. SAT.	S	L	URINE		S	L
GLYCERIN	100	S	S	VINAGRE		S	S
GLYCOLIC ACID	30	S	S	VINYL ACETATE	100	NS	NS
GOLDEN SYRUP	SOL.	S	L	WINE		S	S
HYDRAZINE BENZENE	100	NS	NS	XYLENE	100	NS	NS
HYDRAZINE BENZENE CLORIC	97	NS	NS	YEAST	SOL.	S	L
HYDROBROMIC ACID	50	S	L	ZINC CHLORIDE	SOL. SAT.	S	S
HYDROCHLORIC ACID	>30	S	S				

TS = Not corrosion L = Limited corrosion NS = Corrosion

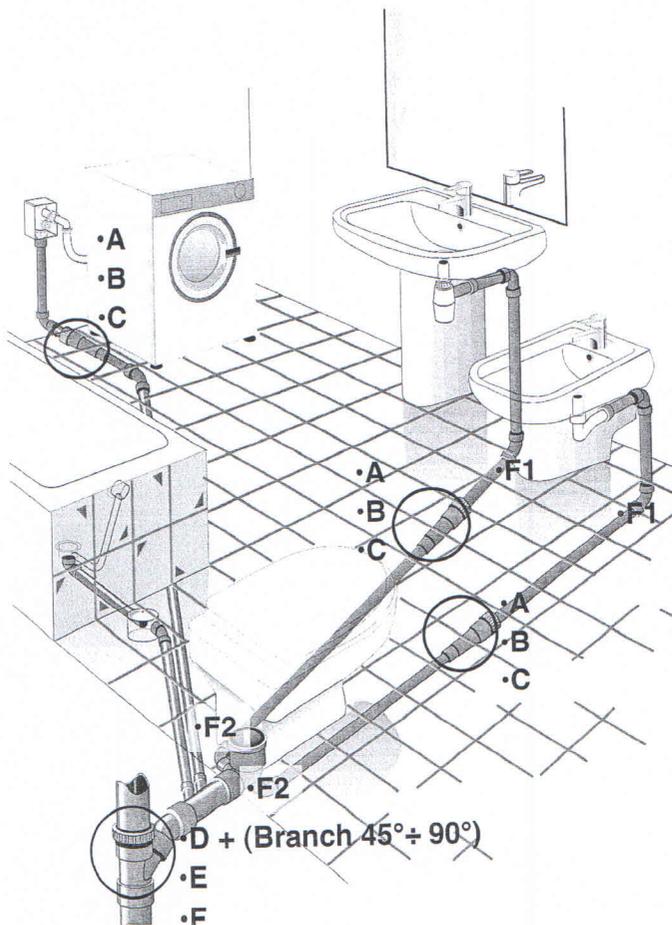
For special applications it is recommended to contact the Technical Department RED I.

Installation guide

Installation of the expansion joint in the PVC drainage systems:

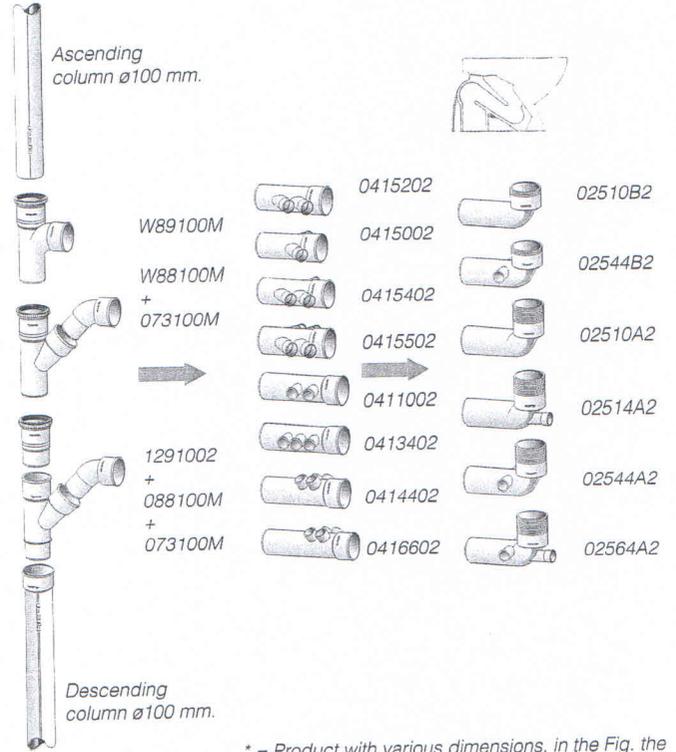
■ In the branches or bends, the most correct technical solution is inserting a horizontal expansion joint (A;B;C) into the piping whenever the section between two fixed points is higher than 2÷3 m, and always when connecting washing machines, dishwashers and kitchen sinks.

■ A vertical expansion joint (D) should be inserted on to each level of the vertical columns above the branch that connects to the bend and the toilet bowl. Alternatively, a branch equipped with an expander (E or F) can be used to directly connect to the column.



Pict.1

Connection to sanitary fittings: vertical connection to the toilet

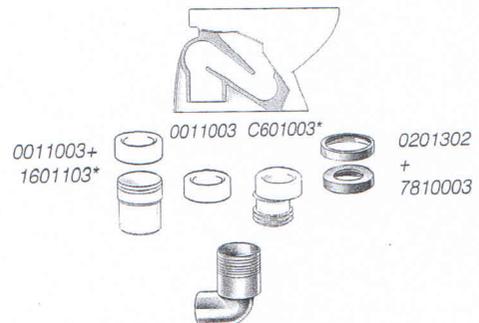


Pict.2

* = Product with various dimensions, in the Fig. the code of the most widely used type is to be found.

Connecting elements:

- Extension for toilet bend.
- EVA Universal Seal with high wear and tear resistance.
- Concentric and eccentric adapters.
- Flat rubber seal with clamping ring.

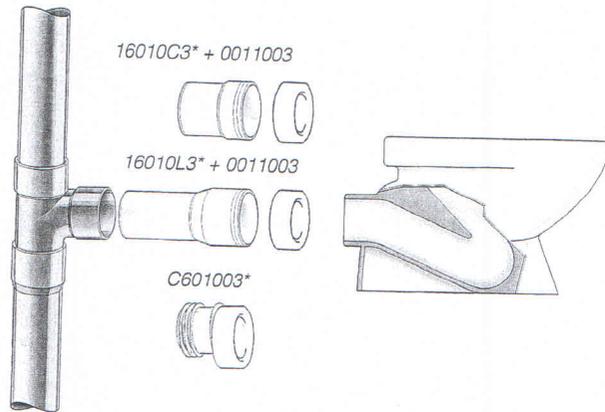


Pict.3

* = Product with various dimensions, in the Fig. the code of the most widely used type is to be found.

Horizontal connection to the toilet (back or suspended)

A both long and short toilet coupling is used on which the same accessories indicated in the figure below can be inserted.

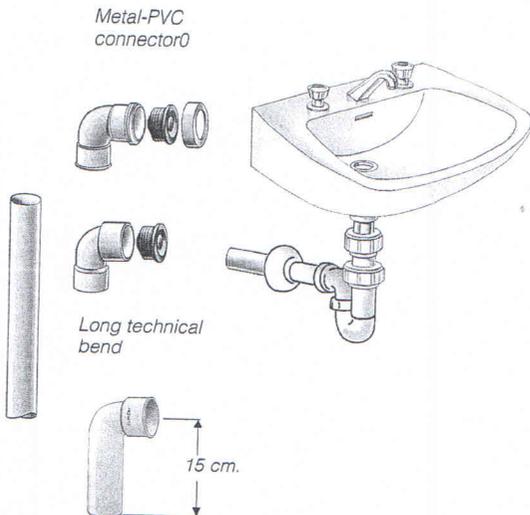


Pict.3

* = Product with various dimensions, in the Fig. the code of the most widely used type is to be found.

Sink/bidet connection

Technical bends: Guarantee good water tightness, maintaining compact sizes against the wall. The same product exists also in the technical coupling version.
 Technical bends with ferrule.
 Extended technical bend.

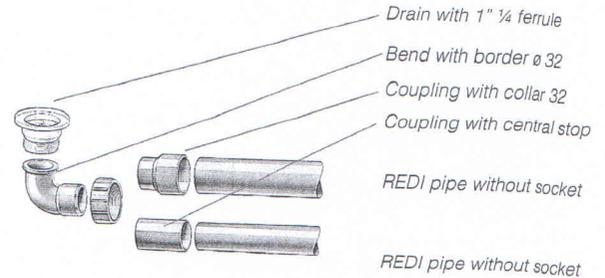


Pict.4

Technical bends with ferrule: Guarantee greater stability of the technical seal which bears slight misalignment of the sleeve connection pipe better.
 This fitting needs a technical self-locking seal shaped accordingly to allow the ferrule to be assembled. This product exists also in the technical coupling version.

Bath and shower connection:

The connection of the bath drain directly to the bend with border Ø32 (026030M) with half a brass ferrule or made from 1" ¼ polypropylene.

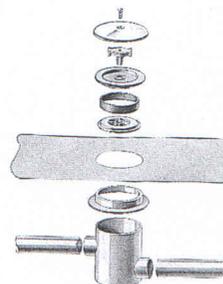


Pict.5

Floor trap:

Waterproofing of the surrounding area, in consideration that infiltration may occur between the walls of the trap and the floor covering: for installation refer to the exploded figure below which indicates the positioning of the necessary components:

- Tap for floor trap (0661002)
- Stainless steel plate (CO01200)
- Drain ring for PVC cloth (0201002)
- PVC cloth (02; R991202)



Pict.6

Typical problems of the drainage system

The main problems which can affect the drainage system are:

- CLOGGING often occurs as a result of an inadequate diameter that, not allowing the regular disposal of sewage, prevents the correct passage of the liquid that normally makes the internal self-cleaning of the walls: a reduced cross-section prevents disposal whilst an excessive cross-section causes the deposit of sediments that might lead to the gradual shrinking of the section until it is blocked. This phenomenon can also occur due to small slopes, abrupt deviations and inadequate confluence.

■ **SMELL EMISSION** is another problem strictly linked to the ventilation system: the descent of sewage can cause the leakage of gases conveyed through the drain pipes of the lower floors or the emptying by suction of the drain pipes located upstream. The misplacement of the vent can cause the emission of odours into the environment: this must be at least 2 m above the ground floor of higher houses, at least 20 cm above the roof cover and always 1m above the architrave of the nearest window.

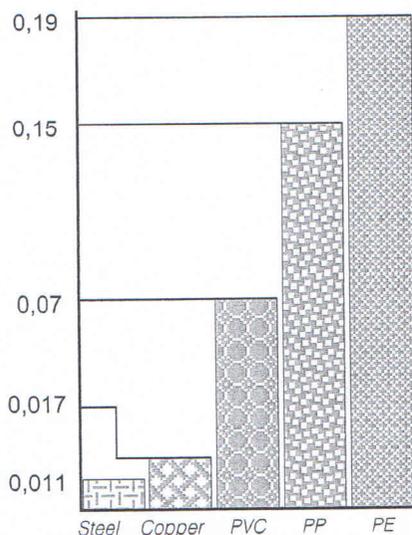
■ **LINEAR EXPANSION** is a problem which affects all plastic and metal systems, depending on the coefficient of linear thermal expansion that is a given characteristic of each material. In order to assess the elongation of each single system section, the thermal expansions of different materials are compared in graph A. It is clear that as concerns the effects of thermal expansion containment, PVC is the least subjected to changes of size which are in the range of:

- 0.07 mm. each 1 m. of pipe
- for 1°C of heat gradient

4 m piping installed at 0 °C that reaches the temperature of 42 °C, is subject to an elongation of around 12 mm (e.g. upright column).

However, in the case of a kitchen drain where boiling water is poured (around 90 C° for the thermal expansion which occurs inside the sink pipe) in a room temperature pipe (20 °C) on a 3 m length of tube it will increase in length by around 15 mm.

Graph A
Linear thermal expansion expressed in mm. x m. x °C



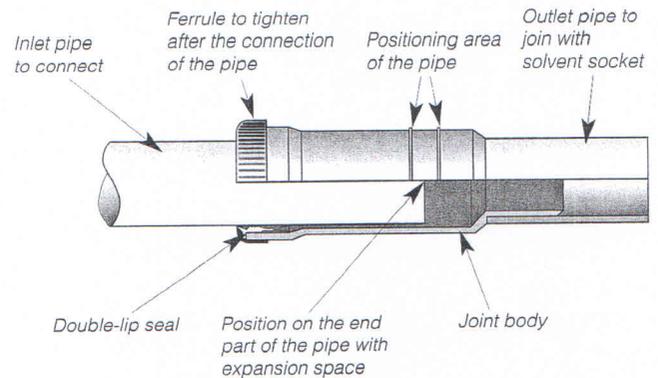
Pict.7

Example of expansion calculation:

T = max operating temperature (e.g. 90°C)
 $T1$ = mounting temperature or minimum operating temperature if below (e.g. 20°C)
 0,07 = linear thermal expansion of PVC expressed in mm x m x °C (Fig. 7)
 L = length of the section in question (e.g. 3 linear metres)
 $(T - T1) \times 0.07 \times L$
 specifically in the case under examination: $(90-20) \times 0.07 \times 3 = 15 \text{ mm}$

The following general rules can be gathered from the example shown:

1) in the branches or bends (Fig. 9) the most correct solution is inserting a horizontal expansion joint into the piping (Fig. 8) whenever the section between two fixed points F (Fig. 9) exceeds 2 ÷ 3 metres and always when connecting washing machines and dishwashers (branches subjected to continuous discharge of hot water).



Pict.8

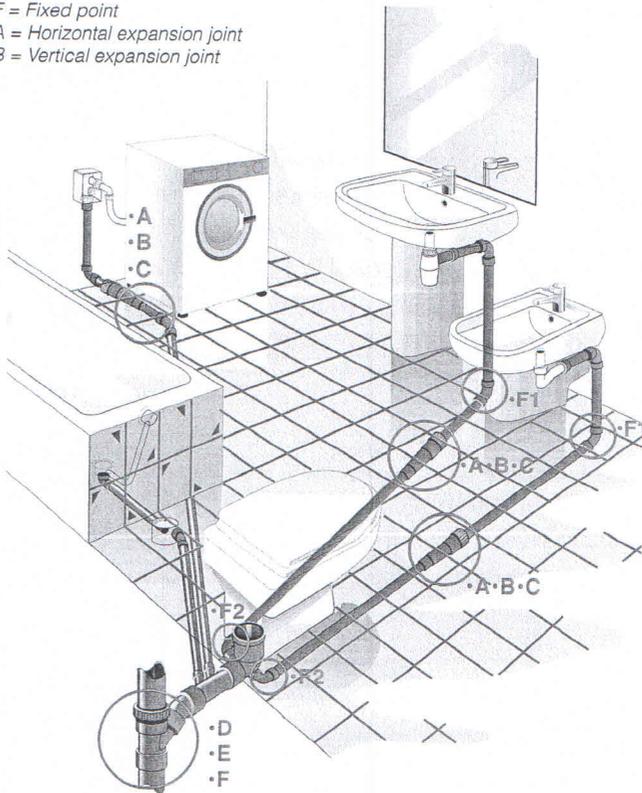
2) A vertical expansion joint should be inserted on each level (every 3 ÷ 4 metres) of the upright columns above the branch which receives the bend and the toilet bowl. Alternatively, a branch equipped with an expander can be used for direct connection to the column (Fig. 10).

3) During the installation of the expansion joint, the following requirements must be observed:
 a) after having treated the joint seal with REDI greaser, also apply the grease to the pipe and insert it into the relative slot. Before tightening the locking ring nut, feed the pipe until it has its end part in the field marked out by two lines, superimposed on the joint body (Fig. 9).

c) install the pipe placed behind the wall without immersing it in the cement, using for the filling of the section fine grained-stabilised material in order to allow for any adjustment caused by expansion.

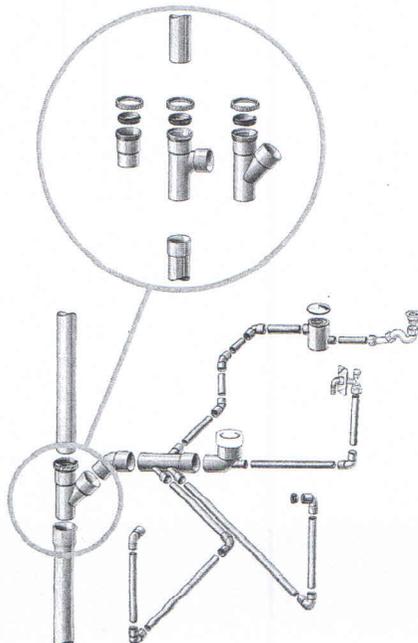
d) during the installation of the branch with joint B (Fig. 9) a fixed point of the column is normally created; the socket of the branch equipped with a seal must remain protected by the casting in order to allow the descending column to expand.

F = Fixed point
 A = Horizontal expansion joint
 B = Vertical expansion joint



Pict.9

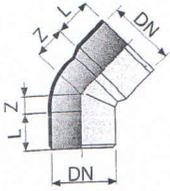
Pict.10 Vertical expansion joint and insertion according to the mounting diagram



M/F

Bend 45°

Coude

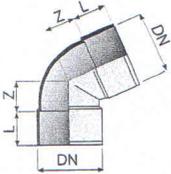


DN (mm)	Reference	Pack	L (mm)	Z (mm)	Note
32	073030M	10/100	23	11	
40	073040M	10/150	27	13	
50	073050M	10/80	32	17	
63	070060M	50	39	22	
75	073070M	25/750	44,5	25	
80	073080M	25	47	26,5	
100	073100M	40/640	53	33	
110	073110M	8/240	56	38	
125	073120M	20/160	61	41	
140	0121402	20/160	61	47	
160	0701602	15/120	72	50	
200	0702002	5/40	85	65	
250	0122502	5	101	79	
315	0123002	3	116	100	
400	0124002	1	155	125	
500	0125002	1	150	160	

Bend Double Socket 67°30'

Coude

F/F

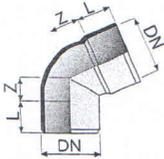
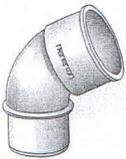


DN (mm)	Reference	Pack	L (mm)	Z (mm)	Note
32	027030M	10/50	23	18	
40	027040M	10/50	27	21	
50	027050M	10/60	32	27	
100	027100M	30/240	57	53	

Bend 67°30'

Coude

M/F



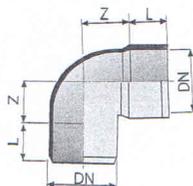
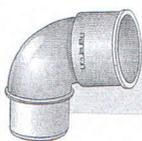
DN (mm)	Reference	Pack	L (mm)	Z (mm)	Note
32	072030M	10/50	23	18	
40	072040M	10/50	27	21	
50	072050M	10/60	32	27	
100	072100M	30	57	53	
110	013110M	30	57	53	
125	013120M	18	64	58	
140	013140M	8	85	76	
160	013160M	10	75	74	
200	013200M	10	87	91	

PVC-U

Bend 87°30'

Coude

M/F



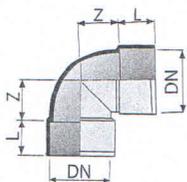
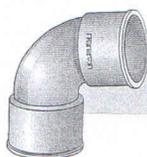
DN (mm)	Reference	Pack	L (mm)	Z (mm)	Note
32	074030M	10/80	23	25	
40	074040M	10/100	27	31	
50	074050M	10/50	32	39	
63	071060M	35/1050	39	48	
75	074070M	10/20	44,5	58	
80	074080M	15/450	47	61	
100	074100M	30/480	57	77	
110	074110M	20/400	61	65	
125	074120M	15	60	101	
140	0141402	12/96	61	83	
160	074160M	15	60	124	
200	074200M	4/32	60	153	
250	0142502	1	103	155	
315	0143002	1	120	192	
400	0144002	1	155	245	
* 110	074110M	20	62	87	

* Long radius / Grand rayon

Bend Double Socket 87°30'

Coude

F/F



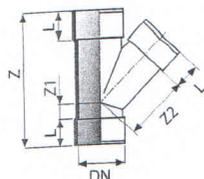
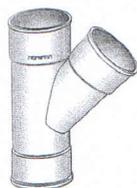
DN (mm)	Reference	Pack	L (mm)	Z (mm)	Note
32	024030M	10/80	23	25	
40	024040M	10/100	27	31	
50	024050M	10/50	32	39	
63	024060M	30/900	39	48	
75	024070M	18/540	44,5	58	
80	024080M	15/450	47	61	
100	024100M	25/400	57	77	
110	024110M	18/144	61	65	
125	024120M	15/120	60	101	
140	E24140M	10	61	83	
160	024160M	8/64	60	124	
200	024200M	4/32	60	153	
250	0242502	1	103	155	
315	0243002	1	120	192	
* 110	024110M	18	62	81	

* Long radius - Grand rayon

F/F

Branch Triple Socket 45°

Culotte

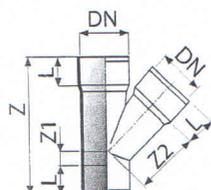
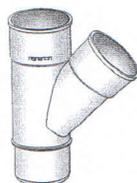


DN (mm)	Reference	Pack	L (mm)	Z (mm)	Z ₁ (mm)	Z ₂ (mm)	Note
32	044030M	10/100	23	98	11	41	
40	044040M	10/60	27	118	13	51	
50	044050M	10/30	32	144	17	63	
63	044060M	15	39	180	21	81	
75	044070M	10	44,5	207	25	93	
80	044080M	10	47	224	27	103	
100	044100M	20/320	57	271	33	124	
110	044110M	10/160	60,5	296	37	138	
125	E44120M	10/80	61	319	41	156	
140	E44140M	8/64	60	334	32	176	
160	044160M	4/32	65	387	45	203	
200	1442002	1/22	86	483	45	250	
250	1442502	1	103	609	57	315	
315	1443002	1	115	725	73	380	

Branch 45°

Culotte

M/F

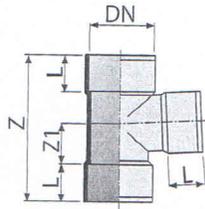
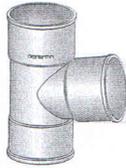


DN (mm)	Reference	Pack	L (mm)	L1 (mm)	Z (mm)	Z ₁ (mm)	Z ₂ (mm)	Note
32	088030M	10/50	23	-	98	11	41	
40	088040M	10/70	27	-	118	13	51	
50	088050M	10/30	32	-	144	17	63	
63	088060M	20	39	-	180	21	81	
75	088070M	10	44,5	-	207	25	93	
80	088080M	8	47	-	224	27	103	
100	088100M	20/320	57	-	271	33	124	
110	088110M	15/120	60,5	-	296	37	138	
125	080120M	8/64	61	-	319	41	156	
140	0301402	8	60	-	334	32	176	
160	0301602	5/40	65	-	387	45	203	
200	0302002	2/20	86	-	483	45	250	
250	0302502	1	103	-	609	57	315	
315	0303002	1	115	-	725	73	380	

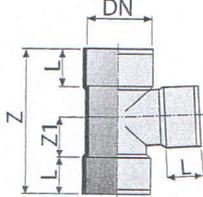
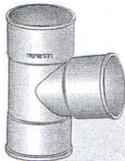
PVC-U

Branch triple socket 87°30'
Culotte

F/F



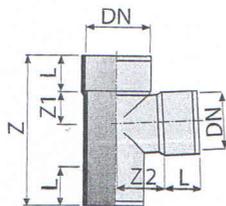
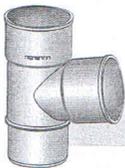
DN (mm)	Reference	Pack	L (mm)	Z (mm)	Z ₁ (mm)	Note
32	045030M	10/50	23	88	25	
40	045040M	10/70	27	106	31	
50	045050M	10/40	32	129	39	
63	W45060M	25	39	159	48	
75	045070M	15	44	185	58	
80	045080M	10	47	195	61	
100	045100M	20/320	57	243	77	
110	045110M	13/104	62	268	87	
125	E45120M	10/80	60	283	100	
140	E45140M	9/72	62	260	70	
160	045160M	5/40	74	335	95	
200	1452002	1/28	86	410	120	
250	1452502	1	103	510	152	
315	1453002	1	115	620	185	



Unequal branch triple socket 87° 30'
Culotte

F/F

DN (mm)	DN1 (mm)	Reference	Pack	L (mm)	Z (mm)	Z ₁ (mm)	Z ₂ (mm)	Note
160	110	0351702	8	74	287	73		
200	160	0460602	4	86	380	110		



Branch 87°30'
Culotte

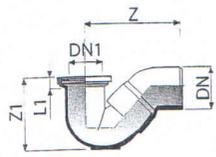
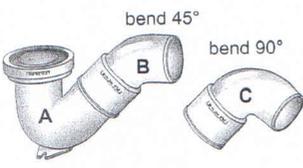
M/F

DN (mm)	Reference	Pack	L (mm)	Z (mm)	Z ₁ (mm)	Z ₂ (mm)	Note
32	089030M	10/50	23	88	17	25	
40	089040M	10/70	27	106	21	31	
50	089050M	10/40	32	129	26	39	
63	0810602	20/600	46	160	42	42	
75	089070M	12	44	185	39	58	
80	089080M	15	47	195	40	61	
100	089100M	20/320	56	227	44	64	
110	089110M	12/96	62	268	57	87	
125	081120M	12/96	62	275	70	70	
140	0341402	8/64	62	260	70	78	
160	0811602	6/48	74	333	95	95	
200	0342002	3/24	86	410	120	120	
250	0342502	1	103	510	152	152	
315	0343002	1	115	620	185	185	



Low backed gully with bend

Siphon pour siège à la turque



DN (mm)	DN ₁ (mm)	Reference	Pack	L ₁ (mm)	Z (mm)	Z ₁ (mm)	Tipo
110	95+135	1771402	15	33	280	214	A
100	95+135	17710A2	10	33	280	214	A + B
110	95+135	17714A2	10/80	33	200	214	A + B
110	95+135	17714C2	10/80	33	310	214	A + C

Baffle for squat toilet

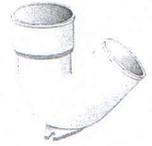
Queue de carpe



DN (mm)	Reference	Pack	Note
32	W201502	10	

Gully Trap

Coude Siphon



DN (mm)	Reference	Pack	Note
110	0771102	12	

WC Bend

Coude WC



DN (mm)	Reference	Pack	Note
100	12510A2	20	