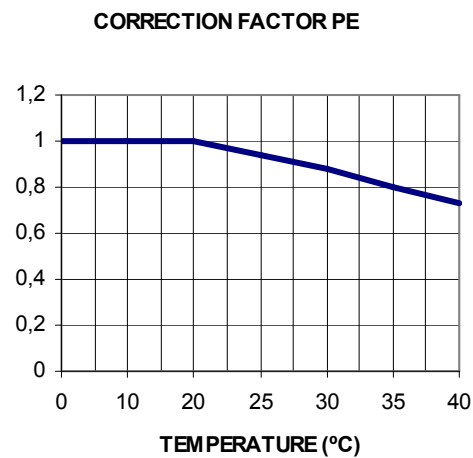
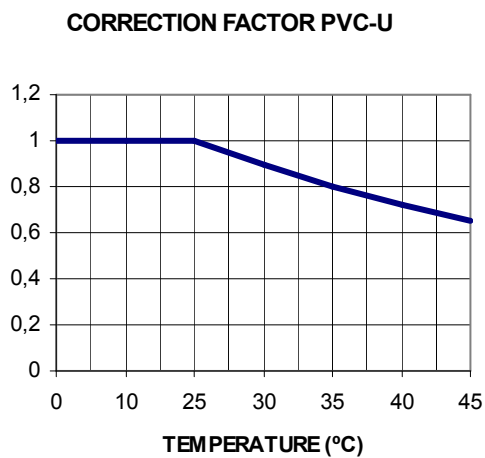


FAQ: FREQUENTLY ASKED QUESTIONS

How does temperature affect PE or PVC pipes?

Temperature has an influence in the behaviour of PVC-U and PE in the resistance of pipes depending on the service temperature, whose result will be the maximum acceptable pressure for working with those pipes.



What is the SDR (RSD) on a pipe?

SDR (RSD) = RELATION OF STANDARD DIMENSIONS

It is the relation between the Nominal Diameter and the Nominal Thickness

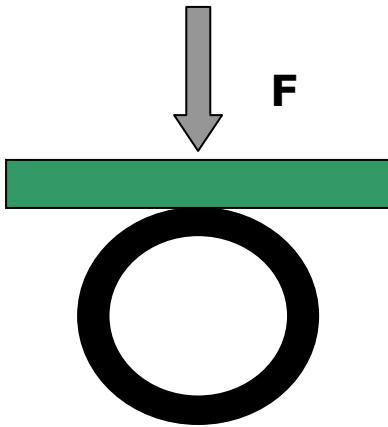
$$SDR = \frac{D_n}{e_n}$$

Table of equivalencies between the SDR (RSD) and the PN

PN	SDR (RSD)
6	26
8	21
10	17
12,5	13,6
16	11
20	9
25	7,4

What is the CIRCUMFERENTIAL RIGIDITY (RCE) on a pipe?

The RCE is the main feature for sewerage pipes without pressure. This feature determines the resistance to crushing of a pipe or fitting, in the conditions set by the UNE EN ISO 9969 standard.



$$SN = \frac{E \cdot I}{D_m^3} \quad (\text{kN/m}^2)$$

Where:

SN = circumferential rigidity

E = elasticity module (N/mm²)

I = inertia module (mm⁴/ mm); $I = \frac{s^3}{12}$

s = thickness of the pipe wall (mm)

D_m = average diameter of the pipe (mm)

What does B, D or BD series mean on waste system piping according to the UNE EN 1329 standard?

It's a classification assigned by the given standard depending on its application:

B Series: Pipes and fittings installed over vertical frameworks or parameters inside buildings (interior structure and drains)

D Series: Pipes buried inside up to 1 m, from the plant projection of the building, to be connected to the sewerage network.

BD Series: Pipes and fittings that can be equally used in any of the previous applications.

Which is the admissible curving radius for PE pipes?

They are detailed in the following table:

		PE 40	PE 80	PE 100
PN	4	20x Dn	30x Dn	50x Dn
	6	20x Dn	20x Dn	30x Dn
	10	20x Dn	20x Dn	20x Dn
	16		20x Dn	20x Dn
	20		20x Dn	20x Dn
	25		20x Dn	20x Dn

What does the U, D or UD code mean on sewerage piping according to the UNE EN 1401 standard?

It is the code of the area of application:

U Series: code for the area of application which is situated over 1 m from the building to which the buried channelling system is connected.

D Series: code for the area of application which is situated less than 1 m from the building from which the pipes and fittings are buried and connected to the building's wastewater system.

What is the CE marking and when will it come into effect? Will it be compulsory?

The CE marking on a product implies that it is affected by a European directive and that the manufacturer declares that it complies with that directive. This marking is compulsory for any product affected by a European directive and which is sold in the European Union.

In the case of plastic piping, the directive is **89/106/CEE** (construction products) and translated into Spanish legislation, **RD1630/92** y **RD1328/95**.

The application of this issue is being carried out progressively and, in the case of plastic piping, they will be marked CE once the harmonized European norms are published. Once published, there will be a period of 2 years (transition period), after which the CE marking will be compulsory.

What are the differences between the CE marking and the AENOR branding?

In the case of the **CE** marking:

- It is compulsory from the expected date.
- No external body takes part. The manufacturer guarantees that it meets all the requirements.
- It is not a quality branding.

The **AENOR** branding:

- It is voluntary; in no case is it compulsory.
- It is granted by an external body which regularly audits the manufacturer in order to make sure that it complies with the regulations.
- All the standard's characteristics are checked through, not only those necessary for the CE marking.

What is the Elasticity Module?

The elasticity module is a feature which determines the behaviour of an elastic material depending on the direction in which a force is applied.

		Elasticity Module (N/mm ²)	
		Short term	Long term
Material	PE	800 a 1.100	130 a 160
	PVC	3.000	1.750
	PP	1.200 a 1.800	450 a 460
	PRFV	3,9 x 10 ⁴	10 ⁴
	CONCRETE	2 x 10 ⁴ a 4 x 10 ⁴	
	CAST-IRON	1,7 x 10 ⁵	
	STEEL	2,1 x 10 ⁵	

What is the thermal dilation coefficient?

The thermal dilation coefficient is a feature to be taken into account when piping is placed in the open, in order to avoid bursting and other problems in the long term. This coefficient indicates the dilation of material for every meter and degree of temperature increase.

		Coefficient of lineal thermal dilation (mm/m·°C)
Material	PE	0,17 to 0,22
	PVC	0,06 to 0,08
	PP	0,11 to 0,18
	CONCRETE	0,012
	CAST-IRON	0,012
	STEEL	0,011

What angular deviation may be allowed for PVC pipes with rubber ring joints without it affecting its tightness?

The maximum angular deviation that may be applied in the installation of this type of joint depends on the pipe's nominal diameter. They are as follows:

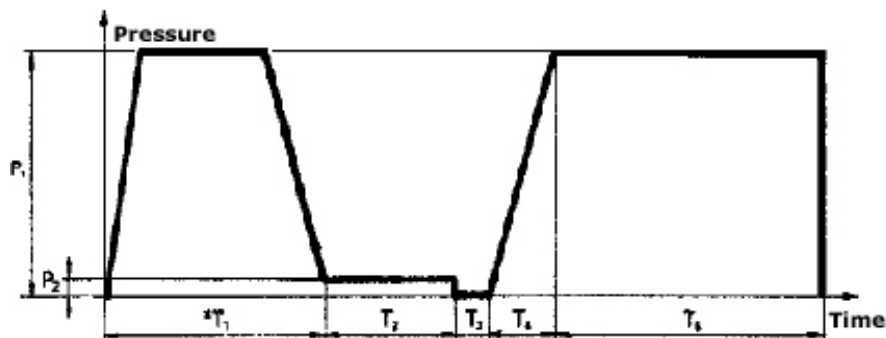
For $D_n \leq 315$ mm. → 2°

For $315 < D_n \leq 630$ mm. → $1,5^\circ$

For $D_n > 630$ mm. → 1°

What times have to be applied for soldering?

The time parameters for soldering are determined by the UNE 53394 IN standard and they are as follows:



Where:

P_1 Pressure of the hydraulic system (table of the soldering machine).

P_k Pressure of the pre-set soldering: 1,5 bar.

P_2 Pressure in the warm-up time.

T_1 Time of conformation of the initial cord.

T_2 Warm-up time.

T_3 Time to remove the plaque.

T_4 Time to reach the soldering pressure.

T_5 Time of cooling.

		Initial cord Height	T_2 (s)	T_3 (s)	T_4 (s)	T_5 (m)
Pipe thickness (mm)	Up to 4,5	0,5	45	5	5	5
	4,5 a 7	1,0	45 to 70	5 to 6	5 to 6	6 to 10
	7 a 12	1,5	70 to 120	6 to 8	6 to 8	10 to 16
	12 a 19	2,0	120 to 190	8 to 10	8 to 11	16 to 24
	19 a 26	2,5	190 to 260	10 to 12	11 to 14	24 to 32
	26 a 37	3,0	260 to 370	12 to 16	14 to 19	32 to 45
	37 a 50	3,5	370 to 500	16 to 20	19 to 25	45 to 60
	50 a 70	4,0	500 to 700	20 to 25	25 to 35	60 to 80