Drainage PE 2DREN

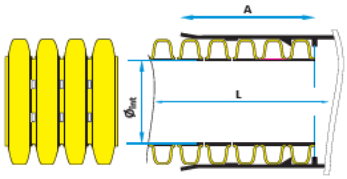
2DREN C1 SN2 pipes for normal drainage ND - UNE 53994

IBOTEC presents the perforated PE 2DREN C1 SN2 pipe for surface and underground water drainage networks, ND normal drainage, with ring stiffness greater than 2 kN/m^2.

Application:

It is applied in normal drainage (ND), of agricultural land, parks, sports venues, canals, retaining walls, cellars, tunnels, communication routes, railway networks, car parks, etc. Fulfilling all the requirements of UNE 53994.

The 2DREN C1 SN2 pipe is made of polyethylene, has a corrugated single wall (C1), is very light and with mechanical properties suitable for underground application without external loads.

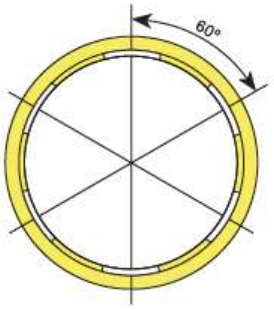


The dimensions of the pipes are determined according to the standard EN ISO 3126 as follows:

PE 2DREN C1 SN2 pipe dimensions					**Catchment surface**	
d_n	External diameter $Ø_{ext}$ (mm)	Internal diameter $Ø_{int}$ (mm)	Socket length $A_{méd}$ (mm)	Pipe with socket length L_{coil} (m)	Holes (cuts) *L x e (medium)* (mm)	Coil TP (360 °) 6 cuts/rib (cm^2/m)
50	50	≥ 42,3	44,4	50 +0.5 -0.25	9,5 x 1,8	78 (456 cuts/m)
80	80	≥ 72,0	60,8	50 +0.5 -0.25 100 +0.5 -0.25	9,5 x 1,8	56 (327 cuts/m)
100	100	≥ 90,4	78,3	50 +0.5 -0.25 100 +0.5 -0.25	9,5 x 1,8	53 (309 cuts/m)
125	125	≥ 108,1	104,3	50 +0.5 -0.25	11,5 x 2,0	55 (240 cuts/m)
160	160	≥ 138,5	118,6	50 +0.5 -0.25	15,5 x 2,0	130 (420 cuts/m)
200	200	≥ 172,0	142,5	40 +0.4 -0.2	17,0 x 2,0	92 (270 cuts/m)

Total perforated – TP

The cuts are distributed in the radial direction throughout the section, located at the base between corrugations along the entire length of the tube, 6 cuts with a distribution of 60 ° (in 360 °), see the figure.



Physical and mechanical characteristics

The most important characteristics determined in the PE 2DREN C1 SN2 pipes are:

- Ring stiffness and flexibility, due to the loads on the buried installation;
- Impact resistance due to handling and transport needs up to trench installation.

PE 2DREN C1 SN2 pipe physical and mechanical characteristics		
Characteristic	Value	Test method
Ring stifness (5 ribs or 300 mm, 3% d_i, speed per d_n)	≥ 2 kN/m^2 (nominal value for SN2)	EN ISO 9969
Impact resistance method round-the-clock (0 °C, hammer mass and falling height per d_n)	TIR ≤ 10%	ISO 3127 UNE 53994

Other technical characteristics

Material: High Density Polyethylene (HDPE).

Colour: Yellow (type RAL 1018).

Marking: The pipe is marked each 2m according to the example:

IBOTEC 2DREN *PE Ø C1 ND SN2 - YEAR - UNE 53994 - DATE+HOUR+OP (IBOTEC traceability code)*

Joint system: With a black PE coupler, supplied with each pipe.

Geotextile blanket: PE 2DREN C1 SN2 pipe can be supplied with or without of 150g/m geotextile in accordance with the harmonized standard EN 13252 (mat with marking CE).

Packing

PE 2DREN C1 SN2 pipe is packed in a safe coil with plastic straps.

PE 2DREN C1 SN2 pipe packing				
		Coil dimensions		
d_n (mm)	**Total length (m)**	**$Ø_{ext}$ (mm)**	**$Ø_{int}$ (mm)**	**Height (mm)**
50	50 100	830 960	280 400	280 375
80	50 100	1080 1260	480 480	460 660
100	50 100	1340 1530	600 610	480 670
125	50	1470	540	560
160	50	1780	850	710
200	40	2000	850	740

Some instructions for installation:

The PE 2DREN C1 SN2 pipe can be easily cut with a knife or scissors. Care should be taken to avoid pinching the pipe, especially with heavy machinery or equipment.

PE 2DREN pipes must be completely wrapped in gravel with adequate dimensions in order to avoid the clogging of the holes. The pipe is considered flexible, and as such, when subjected to a compression force perpendicular to the tube's axis, it is deformed within certain limits and will exert pressure on the

surrounding material. The reaction that is generated and the materials that surround the tube, help to control the deformation of the tube, so lateral compression to the tube is essential.

Maximum allowable deformation limits, according to the guide ISO/TR 7073		
Pipe ring stifness class	**Initial deformation (short term)**	**Final deformation (long term)**
SN2	0,05 x d_n	0,08 x d_n

The increase in the deformation of a pipe is limited by the careful way of choosing the ring stiffness class that best suits the type of soil, the way in which the trench and the laying bed are made, when choosing the filling materials, when choose how to fill the trench (by layers of material) and its degree of compaction.

The technical conditions for installing a pipe must take into account the manufacturer's instructions and must follow at least the requirements described in the standard EN 1610 and guidelines CEN/TR 1046 and ISO/TR 7074.

The choice of the ring stiffness (SN) class of a pipe must take into account the following:

- The use of a ring stiffness class that has been demonstrated in the past with good results in similar situations and that are based on local experience;
- The requirements established in document CEN / TR 1046;
- The use of a ring stiffness class based on the design coefficients of the tube itself.

It can be installed only for buried conditions between 0.8 and 2.5 m (measured from the land surface to the pipe crown) without traffic loads.

IBOTEC.
HIGH TECH PIPES
Apartado 2037
3701-906 Cesar
Portugal
Tel.: +351 256 850 130 | Fax: +351 256 850 139
ibotec@ibotec.pt | www.ibotec.pt