

RENO 100[®] PE100

Polyethylene piping systems manufactured from PE100 (MRS 10), black in colour with or without red identification stripes (other colours may be agreed) intended to be used in the field of industrial applications above and below ground, compliant with the requirements of the international standard EN ISO 15494.



Industrial applications



Industrial applications

Application fields

These pipes are intended to be used for the conveyance of liquid and gaseous fluids as well as solid matter in fluids for industrial applications such as the following:

- chemical plants;
- industrial sewerage engineering;
- power engineering (cooling and general purpose water);
- mining;
- electroplating and pickling plants;
- semiconductor industry;
- agricultural production plants;
- fire fighting;
- water treatment;
- geothermal.

All regulations related to fire behaviour and explosion risks are to be applied if the applications are for fire fighting systems.

Chemical resistance

In case it is necessary to evaluate the chemical resistance of the pipes, information can be derived from international guidelines (e.g. ISO/TR 10358). For some chemicals used at 20 °C, see the following table.

Chemical resistance				20 °C	
Acetic acid	S	Ethanol	S	Naphta	NS
Acetic acid, glacial	S	Ethylene glycole	S	Nitric acid ≤ 25%	S
Acetone	L	Ferrous chloride	S	Ozone	L
Air	S	Fluorine	NS	Oxygen	S
Benzaldehyde	S	Gasoline	NS	Potassium hydroxide ≤ 10%	S
Benzene	L	Glycerine	S	Phosporic acid	S
Borax	S	Hydrochloric acid ≤ 36%	S	Sea water	S
Boric acid	S	Hydrogen	S	Sodium bicarbonate	S
Butane	S	Hydrogen peroxide ≤ 30%	S	Sodium carbonate	S
Calcium carbonate	S	Hydrogen sulfide	NS	Sodium chloride	S
Calcium hydroxide	S	Hydrogen sulfide ≤ 50 %	S	Sodium hydroxide ≤ 40%	S
Carbon tetrachloride	L	Hydrogen sulfide ≤ 30%	S	Styrene	NS
Caustic sode (see sodium hydroxide)		Kerosene	NS	Sulphur bioxide	S
Chlorine dioxide	NS	Liquid ammonia	S	Sulphuric acid ≤ 50%	S
Chlorine water	L	Maleic acid	S	Sulphurous acid ≤ 50%	S
Chloroform	NS	Metane	S	Toluene	L
Citric acid	S	Mineral oils	S		

S = satisfactory resistance L = limited resistance NS = not satisfactory resistance

Installation

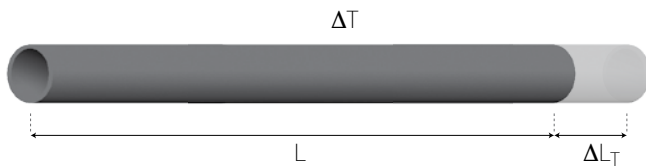
All national requirements and relevant codes of practice must be applied for the installation of networks made with RENO 100® pipes.

Longitudinal thermal expansion

For above ground installations, the thermal expansion of a piping system based on RENO 100® must be kept under control and adequate compensation systems with holders are needed (otherwise for underground laying the friction forces between soil and pipe completely absorb the effect of dilatation).

The longitudinal thermal expansion can be evaluated with the following formula:

$$\Delta L_T = \alpha \cdot \Delta T \cdot L$$



where

α = coefficient of linear thermal expansion for polyethylene (about 0.20 mm/m °C)

ΔT = difference between the laying temperature and the maximum or minimum operating temperature (°C)

L = total length of the line subjected to the expansion (m)

Blending

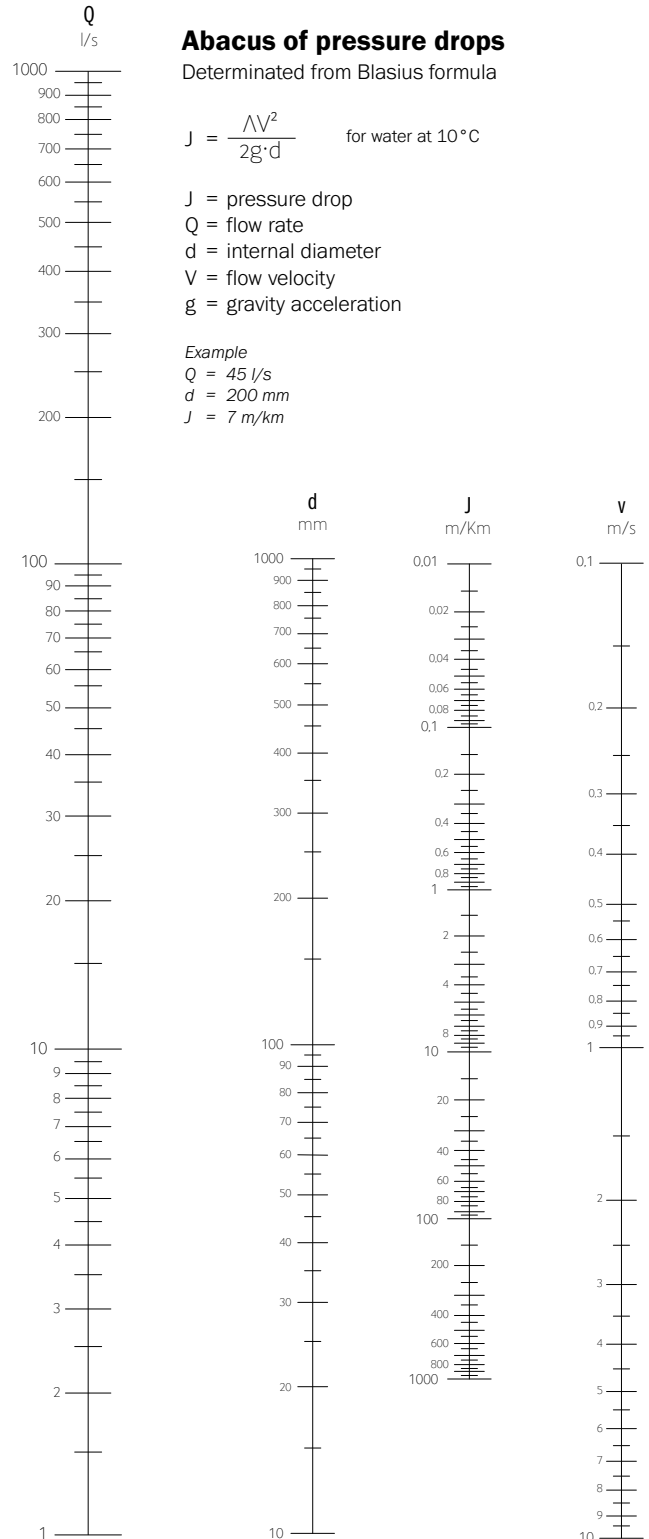
RENO 100® pipes have a high degree of flexibility and can follow the undulations of the ground without bends, provided the radius of curvature is higher than a limit value which depends on the SDR. The minimum bending radius at 20°C is defined in the following table.

SDR	Bending radius
7.4 - 17	≥ 25 DN
21 - 26	≥ 35 DN

Joining

A piping system based on RENO 100® can be joined through butt-fusion welding, electrofusion or mechanical compression joints. The choice of the most adequate joining technique can affect the reliability and the long term behaviours of the pipe network. The range of pipe diameters intended to be assembled with different methods is summarised in the following table.

Joining method	Range of DN
Butt-fusion	DN ≥ 63 mm
Electrofusion	DN ≥ 20 mm



The designer of a piping system shall consider and carefully evaluate the implications of the parameters of each specific project with technical or law regulations.



RENO 100[®]

Industrial applications

DN mm	SDR 26		SDR 17		SDR 13,6•		SDR 11		SDR 7,4	
	e _n mm	DI mm	e _n mm	DI mm	e _n mm	DI mm	e _n mm	DI mm	e _n mm	DI mm
20	-	-	-	-	-	-	2,0	16,0	3,0	14,0
25	-	-	-	-	2,0	21,0	2,3	20,4	3,5	18,0
32	-	-	2,0	28,0	2,4	27,2	3,0	26,0	4,4	23,2
40	-	-	2,4	35,2	3,0	34,0	3,7	32,6	5,5	29,0
50	-	-	3,0	44,0	3,7	42,6	4,6	40,8	6,9	36,2
63	-	-	3,8	55,4	4,7	53,6	5,8	51,4	8,6	45,8
75	-	-	4,5	66,0	5,6	63,8	6,8	61,4	10,3	54,4
90	-	-	5,4	79,2	6,7	76,6	8,2	73,6	12,3	65,4
110	-	-	6,6	96,8	8,1	93,8	10,0	90,0	15,1	79,8
125	-	-	7,4	110,2	9,2	106,6	11,4	102,2	17,1	90,8
140	-	-	8,3	123,4	10,3	119,4	12,7	114,6	19,2	101,6
160	6,2	147,6	9,5	141,0	11,8	136,4	14,6	130,8	21,9	116,2
180	6,9	166,2	10,7	158,6	13,3	153,4	16,4	147,2	24,6	130,8
200	7,7	184,6	11,9	176,2	14,7	170,6	18,2	163,6	27,4	145,2
225	8,6	207,8	13,4	198,2	16,6	191,8	20,5	184,0	30,8	163,4
250	9,6	230,8	14,8	220,4	18,4	213,2	22,7	204,6	34,2	181,6
280	10,7	258,6	16,6	246,8	20,6	238,8	25,4	229,2	38,3	203,4
315	12,1	290,8	18,7	277,6	23,2	268,6	28,6	257,8	43,1	228,8
355	13,6	327,8	21,1	312,8	26,1	302,8	32,2	290,6	48,5	258,0
400	15,3	369,4	23,7	352,6	29,4	341,2	36,3	327,4	54,7	290,6
450	17,2	415,6	26,7	396,6	33,1	383,8	40,9	368,2	61,5	327,0
500	19,1	461,8	29,7	440,6	36,8	426,4	45,4	409,2	-	-
560	21,4	517,2	33,2	493,6	41,2	477,6	50,8	458,4	-	-
630	24,1	581,8	37,4	555,2	46,3	537,4	57,2	515,6	-	-
710	27,2	655,6	42,1	625,8	52,2	605,6	64,5	581,0	-	-
800	30,6	738,8	47,4	705,2	58,8	682,4	72,6	654,8	-	-
900	34,4	831,2	53,3	793,4	66,1	767,8	81,7	736,6	-	-
1000	38,2	923,6	59,3	881,4	73,5	853,0	90,8	818,4	-	-
1200	45,9	1108,2	-	-	-	-	-	-	-	-

DN = nominal outside diameter DI = inner diameter e_n = nominal thickness

• Dimension not included UNI EN ISO 15494



The range of certified products can be checked on www.idrotherm2000.com and on the websites of the certification bodies.



Polyolefins piping division

Via Pio La Torre, 21 - 55032 Castelnuovo Garfagnana (Lu) Italy
Tel. +39 0583 65496 - Fax +39 0583 62033
www.idrotherm2000.com - info@idrotherm2000.com

TECHNICAL SERVICE
+39 0583 65496
info@idrotherm2000.com