

# PE 100 PIPES FOR WATER SUPPLY NETWORKS

**Pipes from polyethylene** are used very successfully in water supply systems and have known advantages over pipes from other standard materials (steel pipes, pipes from ductile iron).

## Advantages of polyethylene pipes:

- corrosion resistance, which enables low maintenance costs and a long life span
- flexibility, which allows for reeling on coils, less joints, simpler and quicker laying, decreased sensitivity to ground movements and creep, advantages with replacement of old water systems
- low pipe weight, which improves handling, laying and lowers transportation costs
- wide chemical resistance – excellent resistance to acid, lye and solvents

## The pipes are manufactured from materials with the following characteristics:

MRS	10,0 MPa
SPECIFIC WEIGHT	> 950 kg/m <sup>3</sup>
LINEAR ELONGATION FACTOR	≈0,15 mm/mK
THERMAL CONDUCTION	≈0,38 WK <sup>-1</sup> m <sup>-1</sup>
ELASTICITY MODULUS	E <sub>[1min]</sub> ≥1100 MPa
SURFACE ELECTRICAL RESISTANCE	>10 <sup>14</sup> Ω



## Production programme:

External pipe diameter	External pipe diameter tolerance		PN 10 (working pressure up to 10 bar) SDR 17.0				PN 16 (working pressure up to 16 bar) SDR 11.0			
			Wall thickness		Internal diameter	Pipe diameter	Wall thickness		Internal diameter	Pipe diameter
<b>d</b> (mm)	<b>d</b> <sub>min</sub>	<b>d</b> <sub>max</sub>	<b>e</b> <sub>min</sub>	<b>e</b> <sub>max</sub>	<b>d</b> <sub>i</sub> (mm)	(kg/m)	<b>e</b> <sub>min</sub>	<b>e</b> <sub>max</sub>	<b>d</b> <sub>i</sub> (mm)	(kg/m)
20	20,0	20,3	—	—	—	—	2,0	2,3	16,0	0,12
25	25,0	25,3	—	—	—	—	2,3	2,7	20,4	0,18
32	32,0	32,3	2,0	2,3	28,0	0,192	3,0	3,4	26,0	0,29
40	40,0	40,4	2,4	2,8	35,2	0,296	3,7	4,2	32,6	0,44
50	50,0	50,4	3,0	3,4	44,0	0,455	4,6	5,2	40,8	0,67
63	63,0	63,4	3,8	4,3	55,4	0,725	5,8	6,5	51,4	1,06
75	75,0	75,5	4,5	5,1	66,0	1,030	6,8	7,6	61,4	1,48
90	90,0	90,6	5,4	6,1	79,2	1,470	8,2	9,2	73,6	2,15
110	110,0	110,7	6,6	7,4	96,8	2,190	10,0	11,1	90,0	3,19
125	125,0	125,8	7,4	8,3	110,2	2,790	11,4	12,7	102,2	4,13
140	140,0	140,9	8,3	9,3	123,4	3,510	12,7	14,1	114,6	5,15
160	160,0	161,0	9,5	10,6	141,0	4,580	14,6	16,2	130,8	6,76
180	180,0	181,1	10,7	11,9	158,6	5,790	16,4	18,2	147,2	8,55
200	200,0	201,2	11,9	13,2	176,2	7,140	18,2	20,2	163,6	10,50
225	225,0	226,4	13,4	14,9	198,2	9,060	20,5	22,7	184,0	13,30
250	250,0	251,5	14,8	16,4	220,4	11,100	22,7	25,1	204,6	16,40

The **d<sub>i</sub>** value is informative and can be changed with respect to the external diameter tolerance **d** and wall thickness **e**.

Upon request we can also manufacture SDR 13,6 and SDR 17,6.



## Markings

The pipes are marked according to the product standards on each running meter with a visible and permanent mark. The mark contains the following mandatory information:

- manufacturer
- pipe dimension (d x e)
- working pressure
- standard (of the product)
- flow media
- type of material
- SDR
- date of manufacture



The pipe colour is black with coextruded horizontal lines. The line colour is blue **RAL 5005**.

Pipes with 20-110mm diameters are available in coils or in straight pieces of 6 and 12 meters. Pipes with diameters larger than 110mm are available only in straight pieces of 6 or 12 meters.

## Instructions for uncoiling

### With coiled pipes attention must be paid to the following:

- PE pipes up to 63mm in diameter are generally uncoiled vertically (the coil is placed in a vertical position), where the end of the pipe must be carefully and strongly fitted.
- With pipe diameters larger than 63mm an uncoiling device must be used; special attention should be paid to uncoil the pipe in a straight line (e.g. along the trench) and that the pipe does not break. Uncoiling the pipe in the shape of a spiral is not permitted.
- Furthermore, it must be taken into account that with the pipes in coils the end of the pipe works as a spring when released. With large coils this force is especially strong and can cause damage if not handled with care.

## Welding of polyethylene pipes with jointing elements or together according to the DVS 2207 series standards

For welding of PE pipes with jointing elements or together, electro-resistance, poly-fusion and butt welding procedures can be used. One of the conditions for a quality weld is the uniform temperature of welded surfaces. Uneven temperature of pipe surfaces prepared for welding is the consequence of partial exposure to sunrays.

At temperatures lower than 5 °C the welding is performed only if the welding site is protected against the elements (a tent) and heated to the working temperature of at least 5 °C. Welding of PE pipes with jointing elements can be performed only by qualified welders. The pipeline is tested in accordance with the SIST EN 805/2000 standard Water supply. Requirements for systems and components outside buildings with a test pressure which is 2 bars higher than the working pressure, but should be no lower than 3 bars. The test is carried out with air or an inert gas.

Damage to the external surfaces (cuts, scratches, etc.) must not exceed a depth of 10% of nominal wall thickness.

More detailed instructions for installation are available at the company headquarters.

## Ovality of PE pipes in accordance with the SIST EN 12201-2 standard

With planning and laying of a water supply system it must be taken into account that the ovality of pipes is prescribed with standards and is allowed, to a certain degree, for straight pieces of pipe and pipes in coils. The ends of the pipes must be straightened at the place of welding – ovality must be reduced by simple mechanical or hydraulic tools prior to welding or jointing with mechanical elements. Mechanical jointing elements used vary in quality and price, therefore the installation of each joint must be adapted to the type of the element and instructions for installation.

The company is not liable for possible subsequent claims due to unprofessional installation.