

PE-Xc SDR 7,4-pipes
for drinking water installations





Demands on the pipe:

The single-layer PE-Xc pipe without oxygen barrier is used primarily in the drinking water installation (in other countries also in heating)

The PE-Xc pipe provides the following benefits:

- very good long-term resistance during the internal pressure test
- good thermal ageing stability, thus no damages caused by thermal ageing when used in accordance with the regulations
- stress cracking resistance
- good resistance to chemical solvents, i.e. also resistant to heating water additives such as inhibitors
- oxygen tightness according to DIN 4726

- installation at low temperatures possible without heat treatment
- laying with narrow bending radii
- corrosion resistance
- smooth pipe walls, i.e. minimal pressure loss and no incrustations
- good rapid crack propagation resistance and abrasion resistance
- impact resistance at low temperatures

The Becker Plastics' electron beam cross-linked PE-Xc heating pipe has all these properties. The requirements set forth in DIN 16892/16893 resp. EN ISO 15875 for PE-Xc pipes are met and even surpassed.

Classification of operating conditions according to EN ISO 15875-1

Application class	calculated temperature T_D [°C]	operating life at T_D [Jahre]	T_{max} [°C]	operating life at T_{max} [Jahre]	T_{mal} [°C]	operating life at T_{mal} [h]	typical application
1a	60	49	80	1	95	100	hot water supply (60°C)
2a	70	49	80	1	95	100	hot water supply (70°C)

a) According with national regulations either application class 1 or class 2 may be selected.

Please note: This standard does not apply, if base values exist for T_D , T_{max} , and T_{mal} higher than those listed in this table.

Standard PE-Xc pipes:

Application area drinking water							
PE-Xc pipe measurement				operating conditions according to DIN EN ISO 15875-1			
				class 1		class 2	
d_n [mm]	e_n [mm]	S- Value	SDR- Value	T_{max} [°C]	pressure [bar]	d_n [mm]	pressure [bar]
12	1,8	3,2	7,4	80	10	80	10
16	2,2	3,2	7,4	80	10	80	10
20	2,8	3,2	7,4	80	10	80	10
25	3,5	3,2	7,4	80	10	80	10
32	4,4	3,2	7,4	80	10	80	10
40	5,5	3,2	7,4	80	10	80	10

d_n = outer diameter
 e_n = wall thickness
 S_n = nominal pipe serial number according to ISO 4065
 SDR = standard dimension ratio, allocation of SDR values according to DIN EN ISO 15875-2

Due to the crosslinking the known dropping of the internal pressure resistance - particularly when higher temperatures are concerned - is avoided. In addition, the pipe is insensitive to stress cracking and the influence of chemicals ensured by the crosslinking procedure.

Technical properties of the Becker Plastics PE-Xc pipes:

Properties	Value	Standard
degree of crosslinking	>60%	DIN 16892
density	0,933g/cm ³	DIN 53479
tensile strength	23N/mm ²	DIN 53455
percentage of elongation	>400%	DIN 53455
elastic modulus	appr. 600N/mm ²	DIN 53457
impact strength at +23°C	250kJ/m ²	DIN 53453
thermal conductivity	0,35W/(m*K)	DIN 52612
coefficient of linear thermal expansion	1,5*10 ⁻⁴ m/K	DIN 52328
oxygen tightness (with EVOH oxygen barrier)	< 0,1mg/(l*d)	DIN 4726

Data are partly taken from the technical datasheets of the material manufacturer

Raw material:

The basic material consists of high density polyethylene types of a high molecular weight supplied by renowned raw material producers. Special additives prevent thermal degradation and the influence of metal ions (e.g. of brass fittings).

Pipe production:

The pipes are extruded in a pipe extrusion process on state-of-the-art manufacturing plants, which have been optimized for the processing of polyethylene of high molecular weight.

Crosslinking:

Crosslinking, i.e. the linking of the polyethylene molecules to a macromolecule with a spatial network is continuously done after extrusion by fast high-energy electrons on Europe's most modern and efficient electron accelerators. During this process no radioactive beams are emitted. Thus, the electron beam cross-linked pipe is no source of radiation!

Quality assurance by internal control:

During production the PE-RT pipe of Becker Plastics has to undergo strict controls according to the relevant product standards such as DIN 16892/16893 resp. DIN EN ISO 15875.

Among other investigations, the following tests are made:

- preprocessing control of the raw material charges
- dimensional continuity and accuracy of the pipes
- mechanical-technological tests according to standard, eg Internal pressure test

Quality assurance by external control:

The most important characteristics are constantly tested within the scope of supervision contracts. Depending on the country and the type of pipe the products are supervised through: IMA-D, TGM-A, KIWA-NL. Further monitoring contracts and certificates on demand.



As a leading manufacturer of plastic and composite material pipes for the transport of liquid and gas media, Becker Plastics offers major customers and system providers everything from one source: together with our partners, we develop innovative solutions for special applications on a customer specific basis. Our technical know-how ensures the production of premium products – from small batches through to the production of large quantities.

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