HEWING

PE-HDXc pipes (physically cross-linked polyethylene pipes)

Applications: Domestic drinking water installations, radiator connections and surface regulation

Special properties

- Flexible and therefore easy to install; easy to adapt to demands on the construction site which results in quicker installation
- Resistant to temperature and pressure requirements in drinking water and heating applications
- Oxygen impermeability pursuant to DIN 4726 in heating systems; prevents incrustations in the heating system
- Corrosion-free for reliable long service life
- Hygienic and material neutral, even if high pH value fluctuations in drinking water should occur
- Encrustation-free due to smooth surfaces; no cross-section constriction and constant flow speed
- High resistance of PE-HDXc pipes to mechanical impacts, i.e. during transport and on-site
- High solvent and chemical resistance

DESIGNED FOR YOU.

Technical data – PE-HDXc pipes

Test		Value	Unit	Standard
Degree of cross-linking		≥ 60	%	DIN 16892
Density	23 °C	≈ 0.94	g/cm^3	DIN 16892/ DIN 53479
Notched flexural impact strength according to Charpy	23 °C	no failure	kJ/m^2	DIN EN ISO 179-1/2
Ultimate tensile strength	23 °C	24-30	N/mm^2	DIN EN ISO 6259-1
Tensile strength	23 °C	24-26	N/mm^2	DIN EN ISO 6259-1
Elongation at break	23 °C	400-600	%	DIN EN ISO 6259-1
Elastic modulus (E module)	23 °C	600-800	N/mm^2	DIN 16892 / DIN EN ISO 128
Stress crack resistance		no failure		ASTM D 1693
Moisture absorption		< 0.01	mg (4d)	DIN EN ISO 62
Coefficient of linear expansion	0 °C - 70 °C	$1.5 \cdot 10^{-4}$	1/K	DIN 16892 / DIN 53752
Thermal conductivity		0.41	W/(K•m)	DIN 16892 / DIN 12664
Smallest bend radius		≥ 5•D	mm	DIN 4726
Oxygen permeation*	40 °C 80 °C	≤ 0.32 ≤ 3.6	mg/(m^2•d) mg/(m^2•d)	DIN 4726 DIN 4726
Chemical resistance				DIN 8075, supplementary sheet 1

* For radiator connection & surface regulation applications
All values are guide values.

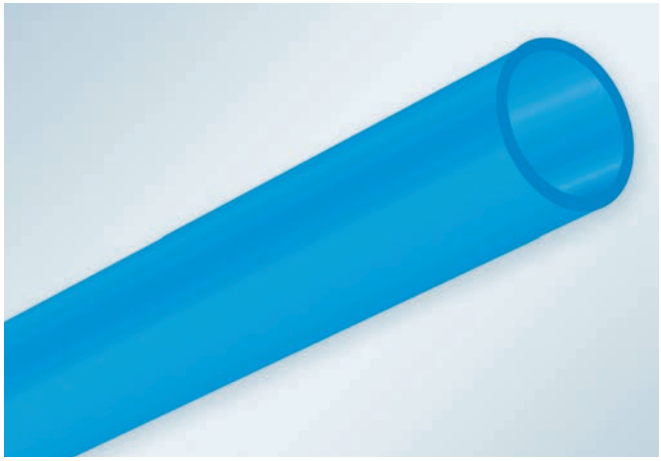
Classification of operating conditions according to DIN EN ISO 15875-1

Application class	Calculated temperature T_D °C	Operating life at T_D years	T_{max} °C	Operating life at T_{max} years	T_{mal} °C	Operating life at T_{mal} h	Typical application
1[a]	60	49	80	1	95	100	hot water supply (60 °C)
2[a]	70	49	80	1	95	100	hot water supply (70 °C)
4[b]	20 plus cumulative 40 plus cumulative 60 plus cumulative (see next column)	2.5 20 25	70 plus cumulative (see next column)	2.5	100	100	floor heating and low temperature radiator connection
5[b]	20 plus cumulative 60 plus cumulative 80 plus cumulative (see next column)	14 25 10	90 plus cumulative (see next column)	1	100	100	high temperature radiator connection

[a] Application class 1 or 2 can be selected according to national regulations.
[b] If more than one calculated temperatur is generated per application class the associated lines with regard to operating life should be added e.g. the temperature combination for a 50-year duration for class 5 comprises:
20 °C for 14 years followed by
60 °C for 25 years followed by
80 °C for 10 years followed by
90 °C for 1 years followed by
100 °C for 100 hours
Please note: This standard does not apply if base values for T_D, T_{max} and T_{mal} higher than those listed in this table exist.

T = temperature, T_D = calculated temperature, T_{max} = maximum calculated temperature, T_{mal} = malfunction temperature

Basic pipe



Single-layer PE-Xc pipes without oxygen barrier are used exclusively in drinking water installations in Germany. In some export markets, they are used in additional application areas. In terms of hygiene, PE-Xc material is irreproachable. This is particularly significant for drinking water installations and adherence to related regulations. It does not react with substances dissolved in water, is unsusceptible to fluctuating pH values and has no impact whatsoever on drinking water quality. Furthermore, the PE-Xc pipes are highly durable, with a service life well in excess of 50 years, as continuously proven by creep strength tests.

A further significant argument in favour of the pipes is simple installation and processing on the construction site. On account of their extreme flexibility, PE-Xc pipes can generally be adapted to existing room geometry without using expensive forming equipment.

Hewing constructs and manufactures the pipes individually according to relevant client requirements.
Many parameters can be individually defined for PE-HDXc basic pipes:

- dimensions
- fitting compatibility
- pipe lengths
- signature
- colour
- prefabricated insulation (see info box)

Standard-model range PE-HDXc basic pipe

PE-Xc pipe according to DIN 16892/93 /DIN EN ISO 15875-2

Application area drinking water domestic installation							
PE-HDXc pipe measurements				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	T_{max} ° C	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 = nominal pipe serial number according to ISO 4065
SDR = standard dimension ratio, allocation of SDR values according to DIN 16893 / DIN EN ISO15875-2

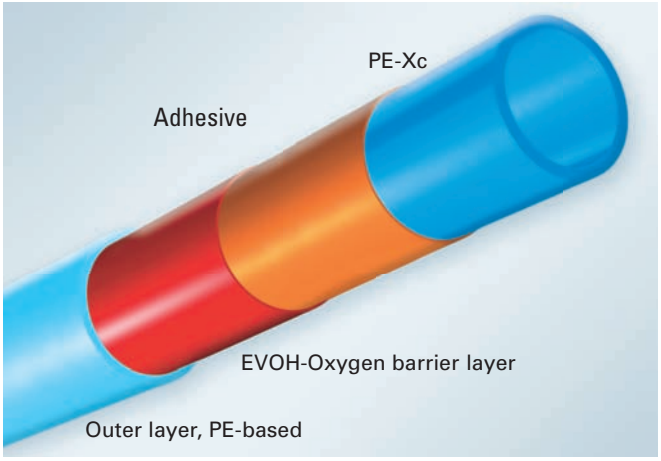
The following insulation variants for the drinking water applications can be supplied on request:

Condensation water insulation 4 mm
All-round insulation 6, 9 and 13 mm
Special asymmetrical heat insulation

Individual client requirements, e.g. prefabricated insulated pipes are implemented by Hewing; special profiles are developed jointly with the client.

PEX-4-Pipe

- DIN-standard oxygen impermeable due to special coating
- protection of oxygen barrier against mechanical impacts via additional PE layer
- PE-Xc inner pipe – Adhesive – EVOH oxygen barrier – PE-based outer layer



PEX-4-Pipes are designed for heating applications and drinking water installations. They feature an additional oxygen barrier layer as well as an outer protective PE layer. Thus, the oxygen barrier is effectively protected against mechanical damage, ensuring extremely safe installation and operation. PEX-4-Pipe is created in a special coextrusion procedure in which the basic pipe is coated three times in a single production step with three additional layers featuring tight tolerances.

Hewing has developed and stringently tested its own special compound for the oxygen barrier layer.

Hewing constructs and manufactures the pipes individually according to relevant client requirements. Many parameters can be individually defined for PEX-4-Pipes:

- dimensions
- fitting compatibility
- pipe lengths
- pipe marking
- colour
- in-plant insulation (see info box)

Standard-model range
PEX-4-Pipe PE-HDXc

PE-Xc pipe according to DIN 16892/93 / DIN EN ISO 15875-2, oxygen impermeable according to DIN 4726

Application area heating							
PE-HDXc pipe measurements				operating conditions according to DIN EN ISO 15875-1			
				Class 4		Class 5	
d_n mm	e_n mm	S-value	SDR-value	T_{max} °C	pressure bar	T_{max} ° C	pressure bar
10.5	1.25	4	9	70	8	90	8
12	2	3.2	7.4	70	10	90	10
14	2	3.2	7.4	70	10	90	10
16	2	4	9	70	8	90	8
17	2	4	9	70	8	90	8
18	2	4	9	70	8	90	8
20	2	5	11	70	8	90	6
25	2.3	5	11	70	8	90	6

Application area drinking water domestic installation and heating							
PE-HDXc pipe measurements				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	T_{max} ° C	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 = nominal pipe serial number according to ISO 4065
SDR = standard dimension ratio, allocation of SDR values according to DIN 16893 / DIN EN ISO15875-2

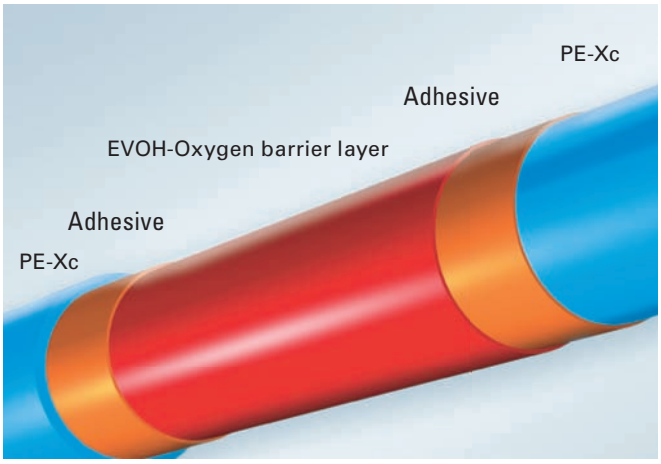
The following insulation variants for heating and drinking water applications can be supplied on request:

Condensation water insulation 4 mm
All-round insulation 6, 9 and 13 mm
Special asymmetrical heat insulation

Individual client requirements, e.g. prefabricated insulated pipes are implemented by Hewing; special profiles are developed jointly with the client.

Penta-Pipe

- oxygen impermeable according to DIN 4726
- centrally positioned oxygen barrier layer (EVOH)
- PE-Xc inner pipe – Adhesive – EVOH oxygen barrier – Adhesive – PE-Xc outer pipe



Using a new developed extrusion procedure, Hewing can process five layers into a homogenous pipe in a single production step. Following subsequent final cross-linking, the pipe is finished: the Penta-Pipe, featuring a centrally positioned oxygen barrier layer. It is equipped with a particularly robust PE-Xc outer pipe, securely connected to the oxygen barrier via a further adhesive layer. Thus, Penta-Pipe is protected from damage on construction sites as well as in operation.
Apart from drinking water installation and classic heating applications this also enables Penta-Pipe to be used for laying directly in the ground, in concrete core activation as well as installation in a medium.

Hewing constructs and manufactures the pipes individually according to relevant client requirements. Many parameters can be individually defined for Penta-Pipe:

- dimensions
- fitting compatibility
- pipe lengths
- pipe marking
- colour
- in-plant insulation (see info box)

Standard-model range Penta-Pipe PE-HDXc

PE-Xc pipe according to DIN 16892/93,
oxygen impermeable according to DIN 4726

Application area heating							
PE-HDXc pipe measurements				operating conditions according to DIN EN ISO 15875-1			
				Class 4		Class 5	
d_n mm	e_n mm	S-value	SDR-value	T_{max} °C	pressure bar	T_{max} ° C	pressure bar
10.5	1.25	4	9	70	8	90	8
12	2	3.2	7.4	70	10	90	10
14	2	3.2	7.4	70	10	90	10
16	2	4	9	70	8	90	8
17	2	4	9	70	8	90	8
18	2	4	9	70	8	90	8
20	2	5	11	70	8	90	6
25	2.3	5	11	70	8	90	6

Application area drinking water domestic installation and heating							
PE-HDXc pipe measurements				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	T_{max} ° C	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
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System providers from the sanitary and heating industry rely on Hewing as a strong OEM partner in the development and production of crosslinked polyethylene pipes and aluminium multilayer pipes. Hewing also offers and develops special solutions for different industrial applications and transport of liquid or solid matters.

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Certified in accordance with:
DIN EN ISO 9001+14001